

JOURNAL OF THE LEPIDOPTERISTS' SOCIETY

Volume 54

2000

Number 1

Journal of the Lepidopterists' Society
54(1), 2000, 1-28

HESPERIIDAE OF RONDÔNIA, BRAZIL: "ANTIGONUS" GENUS GROUP (PYRGINAE), WITH TAXONOMIC COMMENTS AND DESCRIPTIONS OF NEW SPECIES FROM BRAZIL AND GUATEMALA

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ABSTRACT. Some species of the pyrgine (Hesperiidae) "*Antigonus*" group (*sensu* Evans 1953) occurring in central Rondônia, Brazil, are discussed. These are six species of *Mylon* Godman & Salvin, 1894, including two new species *Mylon simplex* and *Mylon argonautarum*; four species of *Carrhenes* Godman & Salvin, 1895, including the new species *Carrhenes recurva*; four species of *Clito* Evans, 1953, including the new combination *Clito clada*, new status; one species of *Xenophanes* Godman & Salvin, 1895; three species of *Antigonus* Hübner [1819]; and one species each of *Timochreon* Godman & Salvin, 1896, and *Anisochoria* Mabille [1877]. Taxonomic comments and illustrations (including male and female genitalia) are provided for these and for some related taxa from elsewhere. The identities of *Leucochitonea jason* Ehrmann, 1907, and *Mylon ozema* var. *extincta* Mabille & Boulet, 1917, are clarified. A lectotype is designated for *L. jason*. The holotype of *M. o.* var. *extincta* is identified and *M. extincta*, new status, is raised from its current synonymy with *M. jason*. *Mylon cristata*, new species, is described from Guatemala. *Carrhenes chaeremon* (Mabille, 1891), revised status; *Carrhenes leada* (Butler, 1870), revised status; and *Carrhenes liloi* Hayward, 1947, revised status, are raised to specific level taxa from their current subspecific or synonymic placements.

Additional key words: genitalia, Neotropics, phenology, variation.

Evans (1952, 1953) divided the Pyrginae (Hesperiidae) into several groups of genera. Although these groups may not be monophyletic and may contain misplaced species (e.g., de Jong 1975, Burns 1990), they are convenient for discussions of species richness and taxonomy of local faunas. Near the municipality of Cacaulândia in central Rondônia, Brazil, an area of ongoing studies of the butterfly fauna (Emmel & Austin 1990), seven of the eleven genera of the "*Antigonus*" group have been found: *Mylon* Godman & Salvin, 1894; *Carrhenes* Godman & Salvin, 1895; *Clito* Evans, 1953; *Xenophanes* Godman & Salvin, 1895; *Antigonus* Hübner, [1819]; *Timochreon* Godman & Salvin, 1896; and *Anisochoria* Mabille [1877]. In this paper, sixteen species previously described in these genera are discussed, four new species are described, a new combination is established, and a species considered by Evans (1953) to be a synonym is identified.

STUDY AREA AND METHODS

A detailed description of the study area near Cacaulândia is presented by Emmel and Austin (1990) and Emmel et al. (2000). In the Cacaulândia

area, there is a pronounced seasonality of precipitation. A dry season extends from May through September with practically no rainfall in June, July, and August. The wettest months are usually January and February.

Forewing length was measured from the base to the apex. "GTA" numbers associated with specimens refer to genital vial numbers. Structures of the genitalia are those used by Austin and Mielke (1998).

MYLON GODMAN & SALVIN, 1894

Evans (1953) included eleven species and four subspecies in this Neotropical genus which ranges from Mexico to Argentina. Six species, including one considered as a synonym by Evans (1953) and two undescribed, were recorded in central Rondônia. These are present in small numbers throughout the year, but are most prevalent during the early wet season (Figs. 107, 108). I propose that the species of *Mylon* be divided into three species groups based on wing pattern and the morphology of male and female genitalia. I also illustrate the genitalia of taxa from other areas, and describe a new species from Guatemala.

"*lassia*" Group

Three species groups appear within *Mylon*, the first proposed being the "*lassia*" group including, in addition to the species discussed below, *Mylon zephus* (Butler, 1870) and *Mylon salvia* Evans, 1953. This group is characterized by hyaline subapical macules on the forewing, a tibial tuft on the hindleg entering a thoracic pouch, a broadly triangular gnathos in ventral view, no style from the ampulla, one or two prominent spines on the aedeagus, and a membranous sac on the ventral side of the phallobase.

Mylon lassia (Hewitson, 1868)
(Figs. 1, 2, 55, 87)

M. lassia is known from Mexico to northern South America (Evans 1953). Males from Costa Rica have genitalia (Fig. 55) as illustrated by Godman and Salvin (1879–1901) and Evans (1953). The female genitalia (Fig. 87) have a narrow lamella postvaginalis which is shallowly notched centrally on its caudal edge and a lamella antevaginalis with broad lateral plates.

Mylon illineatus illineatus Mabille & Boulet, 1917
(Figs. 3, 56)

The nominotypical subspecies of *M. illineatus* ranges from Ecuador to Peru. The genitalia of a male from Ecuador is illustrated here (Fig. 56) in more detail than by either Hayward (1947, 1948) or Evans (1953).

Mylon orsa Evans, 1953
(Figs. 4, 57)

M. orsa was known from the male and two females of Evans' (1953) original description of this species from Costa Rica. The genitalia of an additional male from Costa Rica is illustrated here (Fig. 57) in more detail than previously.

Mylon mestor Evans, 1953
(Figs. 5, 6, 58, 88)

M. mestor was known only from the unique type from Ecuador (Evans 1953). An additional male and a female from Ecuador are illustrated here. The male genitalia are also shown (Fig. 58) and in more detail than by Evans (1953). The female genitalia (Fig. 88)

are similar to those of *M. lassia*, but have a narrower sterigma; the tubular ductus bursae leads to an oblong corpus bursae.

Mylon ander ander Evans, 1953
(Figs. 7, 59)

M. ander is known from Colombia to Bolivia and southern Brazil (Evans 1953). It is rare in the Cacaúlândia area with one record in October and three in November (Fig. 108). The male genitalia (Fig. 59) appear as illustrated by Evans (1953).

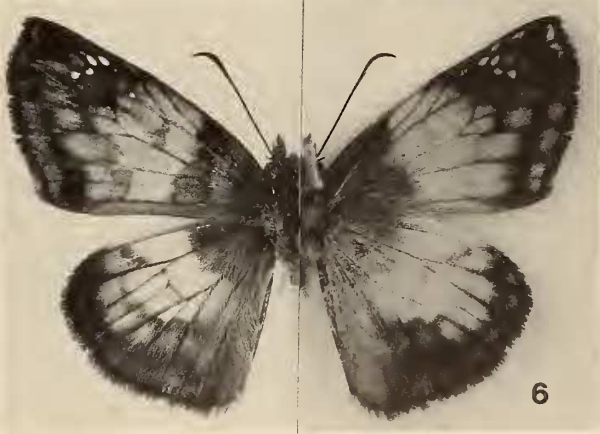
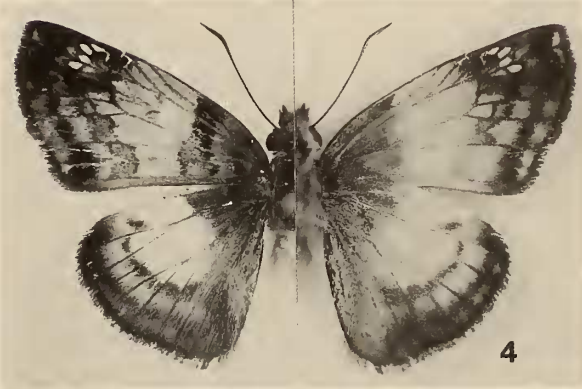
"*menippus*" Group

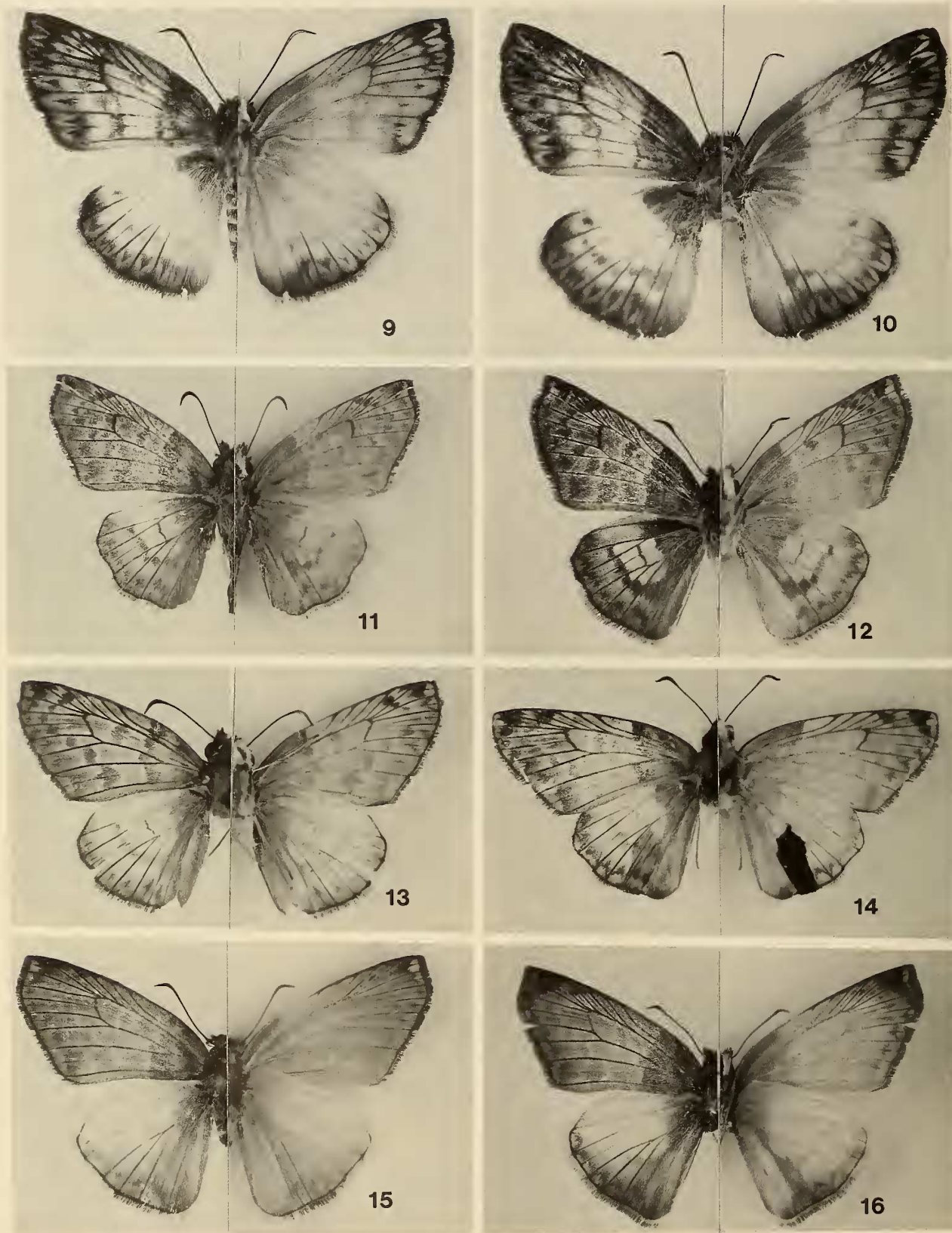
The two species of the here proposed "*menippus*" group, discussed below, differ from the "*lassia*" group by the lack of hyaline subapical macules on the forewing, no tibial tuft, a narrower gnathos, a short and blunt style caudad from the ampulla, and no spines and a generally smaller sack-like structure on the aedeagus. They do, however, have a dorsal process from the harpe as does the "*lassia*" group, similarly long arms of the uncus (very long on *M. cajus*), and a very broad vinculum.

Mylon menippus (Fabricius, 1777)
(Figs. 9, 10, 60, 89)

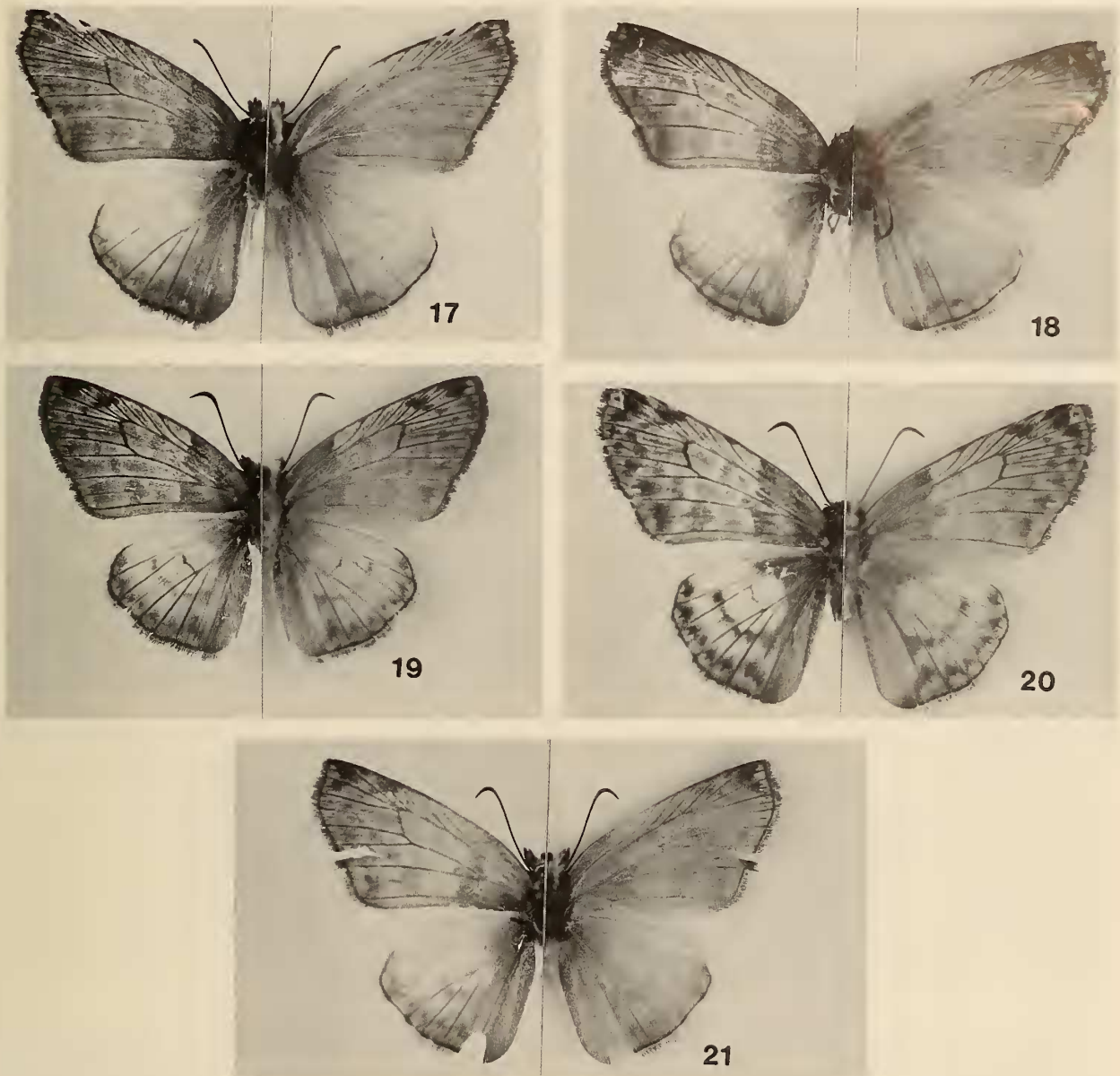
M. menippus is the most common *Mylon* in central Rondônia with records for every month and a peak flight in the early wet season (Fig. 107). The male genitalia (Fig. 60) are as illustrated by Godman and Salvin (1879–1901) and Hayward (1933, 1947, 1948) as *Mylon melander* (Cramer [1780]) and by Evans (1953). There appears to be no variation in the genitalia over the species' broad distribution (Mexico to Argentina), but there is some individual variation in the shape of the harpe. The female genitalia (Fig. 89) have a relatively broad lamella postvaginalis (broader than on *M. lassia* and *M. mestor*), a lamella antevaginalis with broad lateral lobes, a long and thin ductus bursae, and an oblong corpus bursae. There is some individual (but not seasonal) variation in the extent and intensity of markings on the dorsal wings. Some individuals from Rondônia lack the pale-centered dark bar in the mid-discal cell of the forewing, the key character used by Evans (1953) to distinguish *M. menippus* from the following species.

FIGS. 1–8. *Mylon* (dorsal surface on left, ventral surface on right). 1. *M. lassia* male, COSTA RICA: San José Prov.; Finca El Rodeo, 25 Mar. 1989; 2. *M. lassia* female, COSTA RICA: Alajuela Prov.; 6.8 km W of Atenas, 22 Dec. 1984; 3. *M. illineatus* male, ECUADOR: Pastaza Prov.; 25 km NE Puyo, 28 June 1980; 4. *M. orsa* male, COSTA RICA: Alajuela Prov.; 2.8 km S of Cinchona, 27 Sept. 1987; 5. *M. mestor* male, ECUADOR: Pichincha Prov.; Hotel Tinalandia, 2 July 1980; 6. *M. mestor* female, ECUADOR: Pichincha Prov.; 47 km E of Santa Domingo de los Colorados, 12 May 1988; 7. *M. ander* male, BRAZIL: Rondônia; 5 km S of Cacaúlândia, 11 Nov. 1995; 8. *M. cajus hera* male, COSTA RICA: San José Prov.; cerro west of Patarra, 11 Oct. 1987.





FIGS. 9-16. *Mylon* (dorsal surface on left, ventral surface on right). **9.** *M. menippus* male, BRAZIL: Rondônia; 5 km S of Cacaulândia, 11 Nov. 1995; **10.** *M. menippus* female, BRAZIL: Rondônia; Fazenda Rancho Grande, 20 Oct. 1989; **11.** *M. pelopidas* male, GUATEMALA: Petén; Parque Nacional Tikal, 4 Feb. 1992; **12.** *M. pelopidas* female, MEXICO: Pueblo; nr. Izucar de Matamoros, 11 Aug. 1962; **13.** *M. jason* male lectotype; **14.** *M. jason* female paralectotype; **15.** *M. exstincta* male, BRAZIL: Rondônia; Linha C-20, off B-65 at Rio Canaa, 15 Nov. 1994; **16.** *M. exstincta* female holotype.



FIGS. 17–21. *Mylon* (dorsal surface on left, ventral surface on right). 17. *M. argonautarum* male holotype; 18. *M. argonautarum* female, BRAZIL; Rondônia; 5 km S of Cacaupônia, 18 June 1994; 19. *M. cristata* male holotype; 20. *M. cristata* female, GUATEMALA: Petén; Parque Nacional Tikal, 31 May 1993; 21. *M. simplex* male holotype.

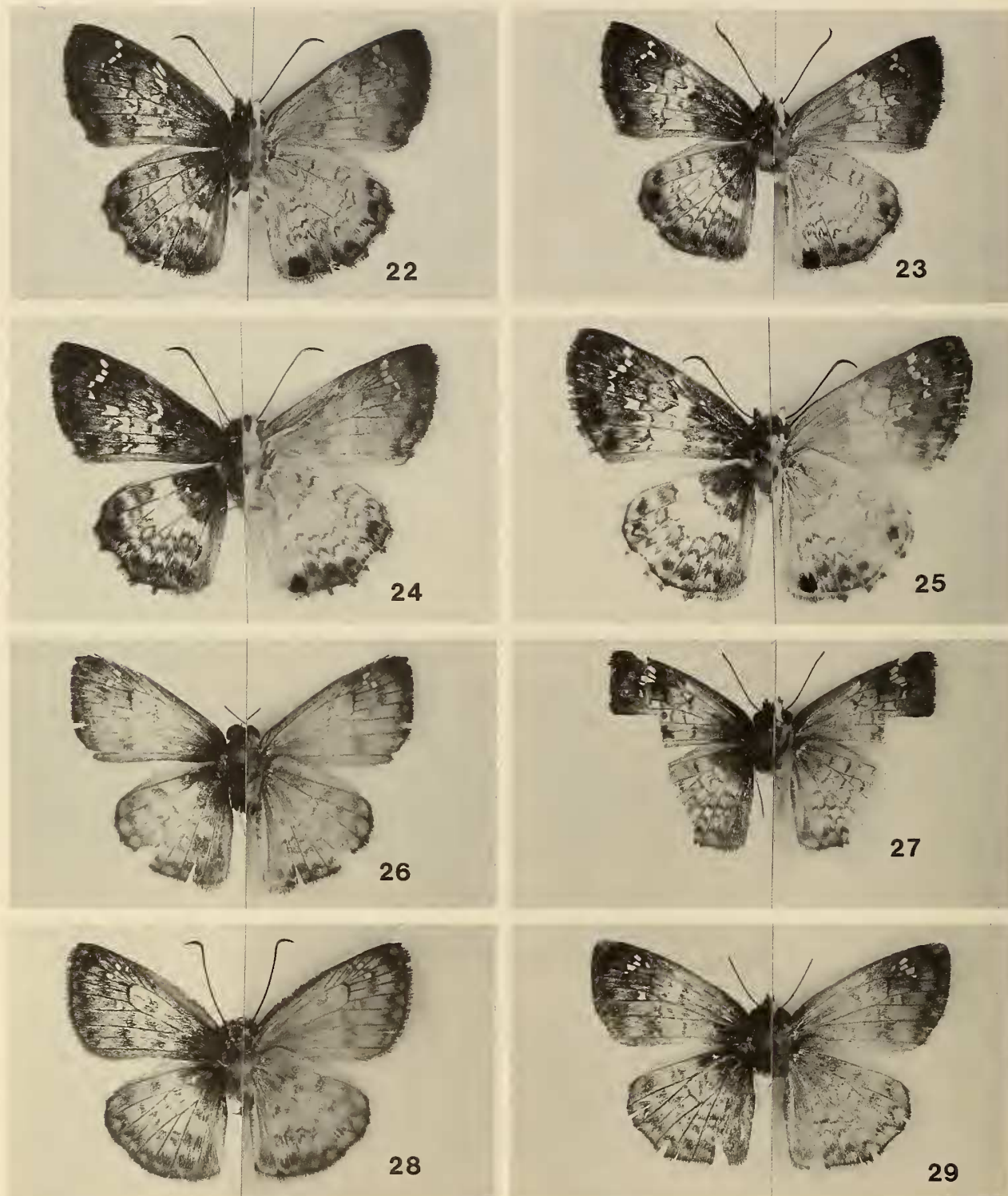
Mylon cajus hera Evans, 1953
(Figs. 8, 61)

This subspecies of *Mylon cajus* (Plötz, 1884) was described from Panama and is known also from Guatemala and Costa Rica (Evans 1953). A male from Costa Rica is illustrated along with its genitalia (Fig. 61) in more detail than by Evans (1953).

“*pelopidas*” Group

The “*pelopidas*” species group, herein designated within *Mylon*, is characterized by the vinculum of the

male genitalia extending conspicuously dorsad to envelop most of the tegumen, being supported by a pair of flaps recurving outward from near the caudal end of the tegumen. The group is also distinguished from other *Mylon* by the short arms of the uncus, a comparatively narrow vinculum, an elongate style from the ampulla, the lack of a dorsal process on the harpe (except for *M. pelopidas*), and a dextral hook near the caudal end of the aedeagus in dorsal view. The gnathos of the “*pelopidas*” group is narrow, there are no spines or a sac-like structure on the aedeagus, and, as on the “*menippus*” group, there are no hyaline subapical mac-



FIGS. 22–29. *Carrhenes*, all from BRAZIL: Rondônia (dorsal surface on left, ventral surface on right). **22.** *C. chaeremon* male, 3 km E of Fazenda Rancho Grande, 18 Nov. 1992; **23.** *C. chaeremon* female, 5 km S of Cacaupândia, 10 May 1995; **24.** *C. bamba* male, Fazenda Rancho Grande, 12 Nov. 1994; **25.** *C. bamba* female, 5 km S of Cacaupândia, 7 Apr. 1995; **26.** *C. leada* male, Fazenda Rancho Grande, 7 Nov. 1991; **27.** *C. leada* female, Fazenda Rancho Grande, 13 June 1993; **28.** *C. recurva* male holotype; **29.** *C. recurva* female, B-65, 1 km N of Cacaupândia, 5 Nov. 1990.

ules on the forewing or tibial tuft. The sterigma of the female genitalia is oval in shape and the lamella antevaginalis has a central process extending cephalad which divides a translucent area ("windows") defined caudad and laterad by its lateral lobes. The shape and size of these "windows" and the shape of and the pattern of spiculation on the central process of the lamella antevaginalis are very useful for determining species. The anterior one-half to two-thirds of the sterigma is covered ventrally by a largely transparent membrane. The ductus bursae is long and very slender and leads to a globular corpus bursae. The group includes *M. pelopidas*, *M. jason*, *M. extincta* (raised from synonymy below), and three new species, all of which are discussed in the following. *M. pelopidas*, *M. extincta*, and two of the new species were encountered near Ca-caulândia.

Mylon pelopidas (Fabricius, 1793)
(Figs. 11, 12, 62, 90)

M. pelopidas is a familiar and widespread species (male forewing length = 19.9 mm [19.0–20.3, N = 5]; female forewing length = 21.4 mm [N = 1]; samples from Rondônia) occurring from Mexico south to Paraguay and southern Brazil (Evans 1953). Although there is a certain amount of individual variation in the intensity of dorsal markings (some of this mediated by wear), there appears to be no geographical variation and the male genitalia (Fig. 62) are constant as more or less illustrated by Godman and Salvin (1895), Holland (1927), and Hayward (1933), all as *Mylon ozema* (Butler, 1870), and by Evans (1953). The female genitalia (Fig. 90) have a lamella postvaginalis with a straight caudal end divided by a V-shaped central notch. The lamella antevaginalis is represented by broad lateral lobes extending nearly as far caudad as the caudal edge of the lamella postvaginalis and has a broad central process flared at its cephalad edge and densely spiculate on its lateral edges. The "windows" are broad and rectangular.

M. pelopidas is uncommon in central Rondônia and is represented by records for January through May, July, and October through December (Fig. 108).

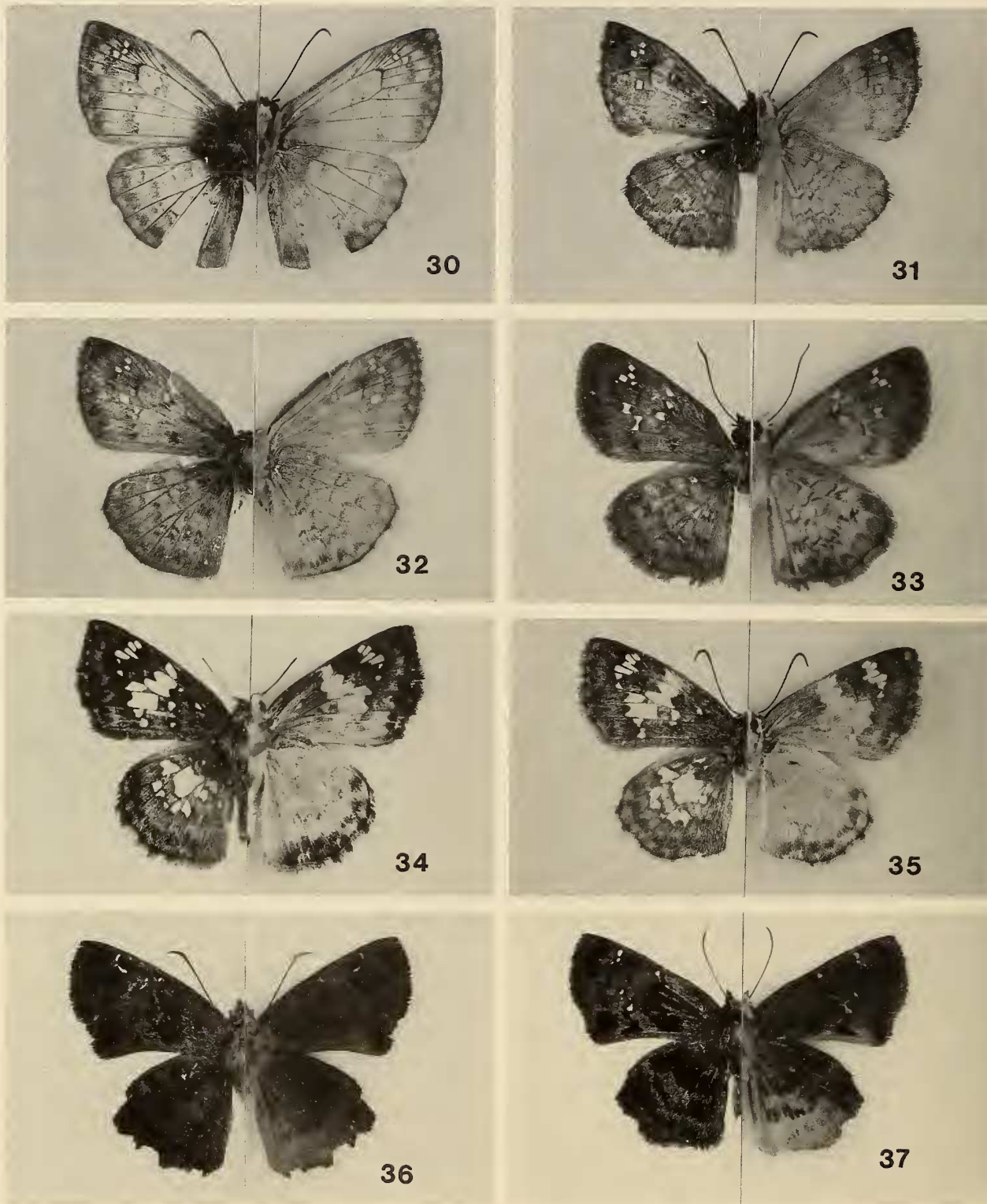
Mylon jason (Ehrmann, 1907)
(Figs. 13, 14, 63, 91)

The concept of *M. jason* has been plagued with problems. The species was described by Ehrmann (1907) as *Leucochitonea jason* from specimens taken in Venezuela. Lindsey (1925) commented on and illustrated the genitalia of a phenotype from South America which resembled *Mylon ozema* (Butler, 1870), a name now synonymized with *Hesperia pelopidas*

Fabricius, 1793, but was apparently unaware of Ehrmann's (1907) name. Holland (1927), in correspondence with Lindsey, resolved that two superficially similar taxa with very different genitalia existed and that *M. jason* applied to the unplaced phenotype of Lindsey (1925). Holland (1927) went on to reproduce Lindsey's (1925) illustration of the genitalia of *M. jason*, as well as the Godman and Salvin (1895) figure of *M. ozema*, but took "the liberty of adding the terminal tuft of bristles, which we have found to be highly characteristic and to occur in every one of the numerous specimens which we have microscopically examined . . ." to Lindsey's figure. The "bristles" refer to those at the caudal end of the harpe. Liberty, however, is not always a good thing. The "type" of *L. jason* is a male and, although the genitalia had not been dissected, the harpes were observable beyond the abdominal integument and were clearly without bristles. Apparently, these were not examined by Holland (1927) although Lindsey (1925) may have seen this species as his figure showed no terminal bristles on the harpe. Lindsey, subsequently, also saw specimens with these bristles as noted in correspondence to Holland (Holland 1927), the latter apparently misled Lindsey on the concept of *M. jason*, and thus a confusion concerning the identity of *M. jason* was initiated.

Neither Lindsey (1925) nor Holland (1927) seemed aware that in the years between the description of *M. jason* and their studies, Mabilie and Boulet (1917) described another taxon, *Mylon ozema* var. *extincta* which also had direct bearing on the problem in the identification of *M. jason*. That taxon was described from a single female from "Amazone sup." in the Boulet Collection at the Paris Museum. To complete this history, Hayward (1947, 1948) illustrated genitalia of *Mylon "jason"* showing bristles on the harpe and Evans (1953) synonymized *M. extincta* with *M. jason* and illustrated genitalia without bristles.

As if the complications in the identification and taxonomy of *M. jason* perpetuated through time were not enough, three species of *Mylon* with this general superficial phenotype were found among material from central Rondônia, two without bristles on the harpe and one with. It thus became critical to examine the types of the two applicable taxa for which names are available to establish their identity. As noted, the "type" of *M. jason* has no bristles on the caudal end of the harpe. Dissection of its genitalia revealed that the terminal end of the harpe is very robust, even in dorsal view, and completely unlike any of the three phenotypes from Rondônia. The two female "paratypes" of *M. jason* which exist (Holland 1927) were also dissected and proved to be of two species as thought by



FIGS. 30–37. *Carrhenes*, *Xenophanes*, and *Antigonus* (dorsal surface on left, ventral surface on right) **30.** *C. liloi* male, ECUADOR: Rio Napo, Limoncocha, 10 July 1983; **31.** *C. canescens* male (gray phenotype), GUATEMALA: Petén; El Remate, Cerro Cahul, 28 Sept. 1994; **32.** *C. canescens* male (brown phenotype), MEXICO: San Luis Potosi; Cd. Valles, 12 July 1972; **33.** *C. canescens* female (brown phenotype), MEXICO: San Luis Potosi; Cd. Valles, 12 July 1972; **34.** *X. tryxus* male, BRAZIL: Rondônia; 5 km S of Cacauplandia, 8 July 1996; **35.** *X. tryxus* female, BRAZIL: Rondônia; 5 km S of Cacauplandia, 14 July 1995; **36.** *A. liborius* male, BRAZIL: Rondônia; 5 km S of Cacauplandia, 15 July 1995; **37.** *A. liborius* female, BRAZIL: Rondônia; 5 km S of Cacauplandia, 28 May 1994.

Holland (1927). That female which he associated with *M. jason* (his Plate 1, fig. 2) matches well in the details of the superficial characters of the "type" male. The second female is a *M. pelopidas*. The "type" of *M. o.* var. *extincta* likewise had not been dissected. Its genitalia are different from those of both the "paratype" considered above as the female of *M. jason* and those of the associated female of *M. pelopidas*. Similarly, details of the superficial markings of the *M. o.* var. *extincta* "type" differed from those exhibited by each of those females. These markings, however, were nearly identical to those of males of one of the Rondônia phenotypes, this also without caudal bristles on the harpe (see below).

To firmly establish the identity of *Leucochitonea jason* Ehrmann, 1907, the male "true type" (Holland 1927) is here firmly established as the lectotype, the female with similar superficial markings alluded to above is designated the paralectotype, and the wings and genitalia of both are illustrated herein. The lectotype (forewing length = 21.7 mm) has labels as follows: red, handprinted - TYPE; white, printed - Ehrman [sic] Coll. / Carn. Mus. / Acc. 7815; white, handprinted - Ann. Carn. Mus. / vol. [not given] 1927. / Pl. xxviii, fig. 1. ♂; white, handwritten - L. Jason Ehrmann / Type No. 555 / E. A. Klages Coll. / Súapure 10/28. 1899 / Venezuela; white, printed and handprinted - Genitalia Vial / GTA - 7307, with the following label added: red, printed - LECTOTYPE / *Leucochitonea jason* / Ehrmann, 1907 / designated by / G. T. Austin 1997. The paralectotype female (forewing length = 21.8 mm) has labels as follows: red, printed - Paratype; white, printed - Ehrman [sic] Coll. / Carn. Mus. / Acc. 7815; white, handprinted - Ann. Carn. Mus. / vol. [not given] 1927. / Pl. xxviii, fig. 2. ♀; white, handwritten - L. Jason Ehr. / Type No. 555 / E. A. Klages Coll. / Súapure 1/18/1900 / Venezuela; white, printed and handprinted - Genitalia Vial / GTA - 7309, with the following label added: red, printed - PARALECTOTYPE / *Leucochitonea jason* / Ehrmann, 1907 / designated by / G. T. Austin 1997. As noted above, the second female "paratype" is a *M. pelopidas* with the following labels: red, handprinted - Paratype; white, handwritten - L. Jason Ehr. / Type No. 555 / E. A. Klages Coll. / Súapure 1/9. 1900 / Venezuela; white, printed - Ehrman - [sic] Coll. / Carn. Mus. / Acc. 7815; white, handwritten - E. ozema Butl. / ♀. Fixed by Holland, cf. / Ann. C. M., Vol XXII / Art. [not given], p. [not given].; white, handprinted - Ann. Carn. Mus. / vol. [not given] 1927. / Pl. XXVIII, fig. 7. ♀ white, printed and handprinted - Genitalia Vial / GTA - 7308.

Superficially, *M. jason* is similar to *M. pelopidas*, but is larger. The mottling of the wings is as on *M.*

pelopidas, but the ground color has more sheen, the postmedian line of the hindwing is less prominent than usual on *M. pelopidas*, and there is less gray-brown scaling between this and the margin. The end of the forewing discal cell, represented by darkened cross veins, is more or less parallel to the termen on *M. jason* and thus is directed towards the proximal edge of the postmedian macule in CuA_2-2A whereas the end of the discal cell on *M. pelopidas* is more erect and directed towards the distal edge of this macule; this character was the one superficial character used by Evans (1953) to distinguish the two species.

The genitalia illustrated by Lindsey (1925) are probably of *M. jason*, those illustrated by Holland (1927) represent a mixed drawing of *M. jason* (after the figure by Lindsey 1925) with bristles of an undescribed species added, those represented by Evans (1953) may be of *M. jason*, but appear to be of *M. extincta* or of an undescribed species. The genitalia represented as *M. jason* by Hayward (1948) have caudal bristles on the harpe and are obviously not of that species. The female genitalia of *M. jason* have a curved caudal edge to the lamella postvaginalis divided by a relatively broad V-shaped central notch and a lamella antevaginalis with wide and lobate lateral lobes and a moderately wide central process with a slightly broadened and convex cephalad end and lateral spicules. The "windows" are narrow and nearly round.

Three additional females of *M. jason* were examined (forewing length = 20.6 mm [20.2–21.3]), all from Guatemala: Petén; Parque Nacional Tikal, 3–4 Feb. 1992 (GTA #7318, 7332, 7337). Thus its distribution extends at least from Guatemala to Venezuela. Records of *M. jason* in the literature must be treated as suspect until the specimens upon which they were based are critically reexamined.

Mylon extincta Mabille & Boulet, 1917, **new status**
(Figs. 15, 16, 64, 92)

Mylon ozema (Butler, 1870) var. *extincta* Mabille & Boulet, 1917.
Mylon jason Ehrmann, 1907; Evans, 1953.

The identity and "type" of *M. extincta* were discussed above. This female type (called a male by Evans 1953, forewing length = 21.8 mm) with the following labels: red, printed - TYPE; white, printed and handprinted - Amazone / Supérieur / 1905 / O. Staudinger / COLL BOULLET (in red letters on left side) / MUSEUM PARIS (in red letters on right side); green, handwritten - *M. ozema*, / var. *Extincta* [sic] / Mab. & Boull.; white, handwritten - Mylon / ozema var. / *Extincta* Mab. Boull. / Bull. Soc. ent. France,



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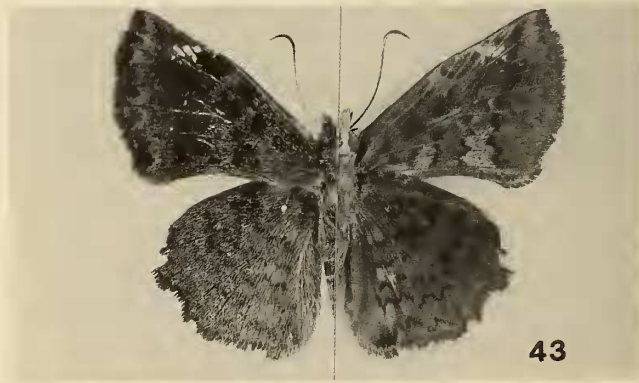
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1917, p. 55; white, printed and handprinted - Genitalia Vial / GTA - 5983, is here identified as the holotype of *Mylon ozema* var. *exstincta* Mabille & Boulet, 1917 and the following label has been added: red, printed - HOLOTYPE / *Mylon ozema* / var. *exstincta* / Mabille & Boulet, 1917 / identified by / G. T. Austin 1997. It and its genitalia are illustrated herein (Figs. 16, 92). A male associated with the holotype is a *Mylon pelopidas* and has the following labels: red, printed - TYPE; white, printed and handprinted - Amazone / Supérieur / 1905 / O. Staudinger / COLL BOULLET (in red letters on left side) / MUSEUM PARIS (in red letters on right side); Genitalia Vial / GTA - 5984; white, printed and handprinted - *Mylon pelopidas* / Fabricius (1793) / det. G. T. Austin 1997.

M. exstincta resembles both *M. pelopidas* and *M. jason* superficially in overall wing shape and color. The species is larger than *M. pelopidas* and about the size of *M. jason*. *M. exstincta* is like *M. jason* in the orientation of the distal end of the forewing discal cell. Although the dark forewing markings are similar on all three species, those of *M. exstincta* are much less contrasting giving a noticeably less mottled aspect. The hindwing of *M. exstincta* is largely unmarked with only a gray shade posteriorly and a darker gray submarginal line being apparent. The postmedian line is not traceable anterior to vein M_3 .

The genitalia of the holotype of *M. exstincta* are generally similar to those of *M. jason*, but differ in detail. The lamella postvaginalis is quadrate with a narrow U-shaped notch on the caudal edge (angled with a broad V-shaped central indentation on *M. jason*) and the lamella antevaginalis is represented by a pair of rounded lateral lobes (narrower on *M. jason*), a cephalad directed central process which is relatively broadly expanded at and spiculate across its cephalad end (less expanded and with lateral spicules on *M. jason*). The "windows" are more elongate and ovate than they are on *M. jason*. The male from Rondônia, Brazil (Linha C-20, off B-65 at Rio Pardo, 15 Nov. 1990, GTA #830), considered to be *M. exstincta* (forewing length = 21.7 mm), also has genitalia generally similar to those of *M. jason*. The entire genital capsule of *M. exstincta* is less robust than is that of *M. jason*. The structure of the harpe is the key to identity. This is very robust, broad in dorsal view, heavily adorned with thorn-like spines,

and recurved to about the level of the style from the ampulla on *M. jason* and much less robust, relatively thin in dorsal view, with fewer and smaller spines, and recurved but slightly on *M. exstincta*.

Because *M. o.* var. *exstincta* differs from *M. jason* in superficial characters and in the genitalia of both sexes, it is here raised from Evans' (1953) synonymy with *M. jason* to specific status.

Mylon simplex Austin, new species

(Figs. 21, 65)

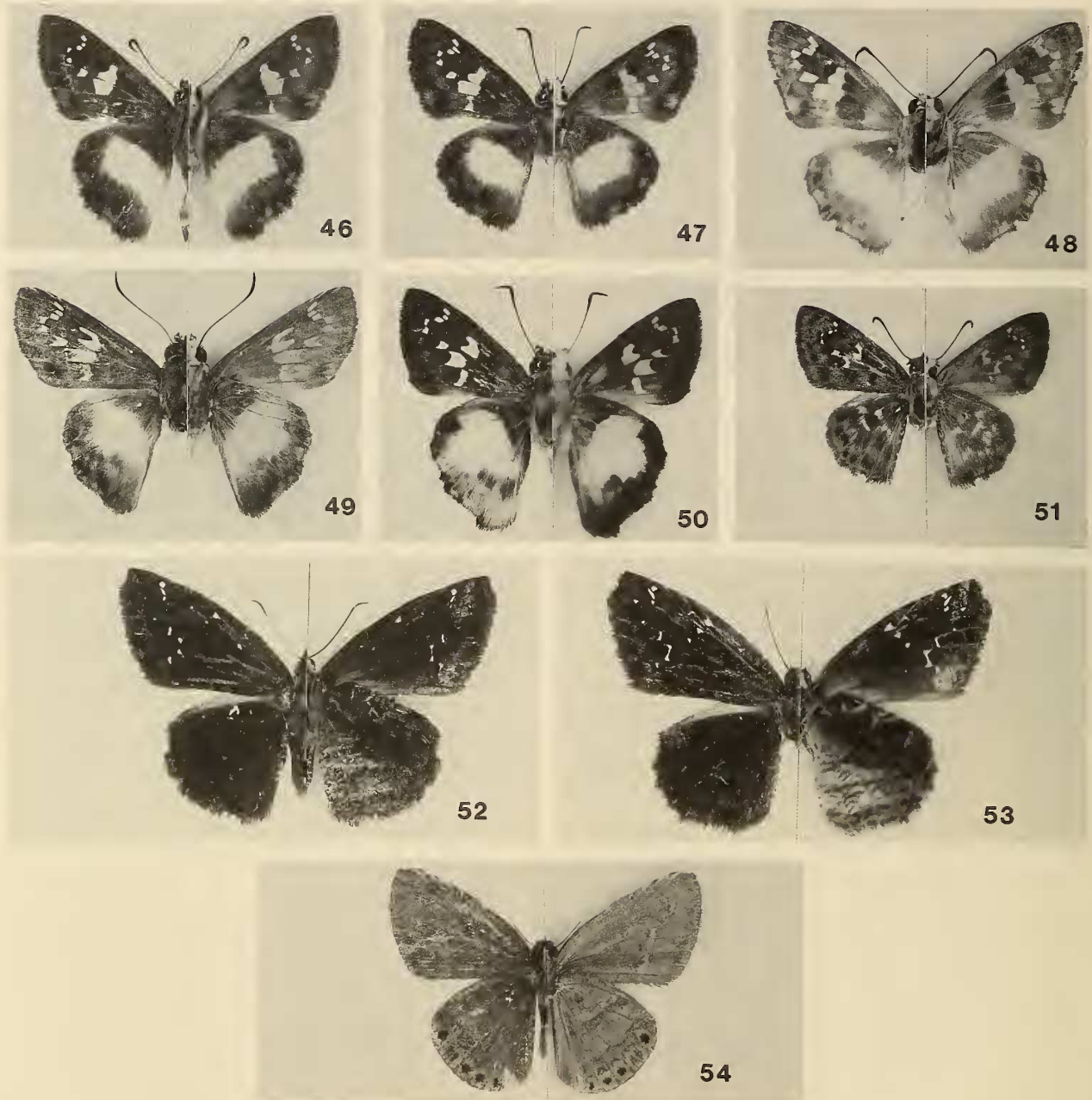
Description. Male - forewing length = 20.6 mm (19.7–21.8, N = 6); ground color of both dorsal wings shining off-white, forewing overscaled with gray and marked with darker gray macules giving mottled appearance, these macules as submarginal, postmedian, postbasal, and basal series in addition to one in discal cell 2/3 distance from wing base to end of cell, submarginal and postmedian macules darkest (nearly black) towards costa; submarginal series sets off relatively distinct pale gray margin; pale ochre-brown between postbasal and basal macules; veins black, those enclosing end of discal cell directed towards proximal edge of postmedian macule in CuA_1-2A . Hindwing with extensive gray along anal margin, this broadest at base of wing, extending to vein M_3 or M_1 as postmedian line; submarginal band of gray-brown decreasing in size and becoming macular (generally chevron-shaped) anteriorly; veins entirely black posteriorly, distally anteriorly. Venter with dorsal pattern very vague to obsolete except at forewing apex where most distinct.

Head black on dorsum with white central patch, white beneath antennae and around eyes, antennae black with white at segments on venter and beneath club, nudum red-brown with 17 (N = 1) or 18 (N = 4) segments, palpi mixed white and dark gray; thorax brown with scattered white scales on dorsum, gray on venter, legs brown with white scales, mid-tibiae with single pair of spurs, hind tibiae with two pairs, no tibial tuft; abdomen gray on dorsum with white at segments, white on venter.

Genitalia - tegumen short, stout, with moderately broad recurved flaps caudad supporting anterior part of broad and enclosing vinculum; vinculum relatively straight; saccus broad, slightly upturned; uncus slightly

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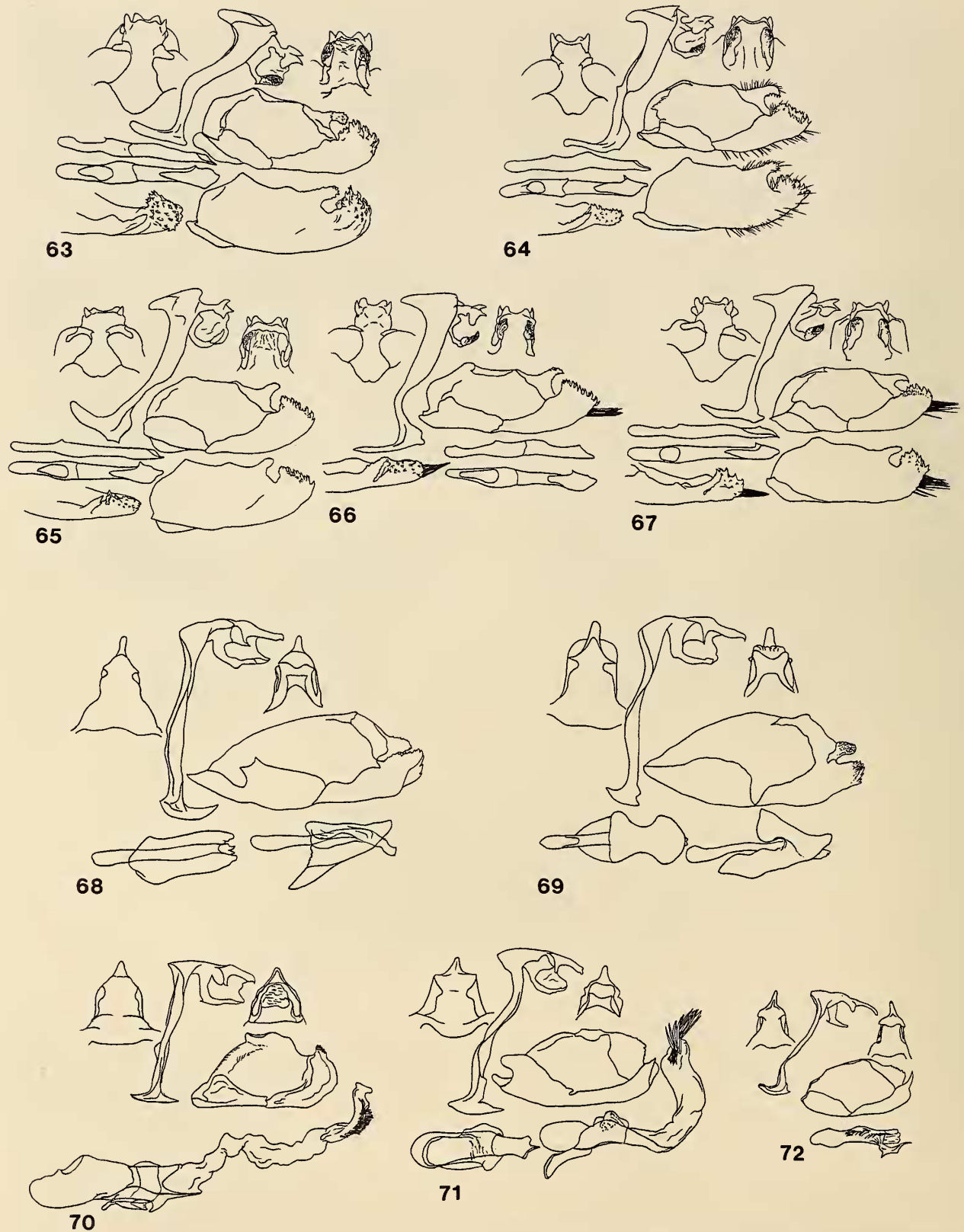
FIGS. 38–45. *Antigonus*; all from BRAZIL: Rondônia (dorsal surface on left, ventral surface on right). 38. *A. nearchus* male, 5 km S of Cacaulândia, 27 Apr. 1995; 39. *A. nearchus* male, 5 km S of Cacaulândia, 4 July 1993; 40. *A. nearchus* male, 5 km S of Cacaulândia, 8 Feb. 1994; 41. *A. nearchus* female, B-80, between linhas C-10 and C-15, 19 Nov. 1991; 42. *A. erosus* male, Linha C-20 at Rio Pardo, 10 Dec. 1990; 43. *A. erosus* male, 5 km S of Cacaulândia, 18 Aug. 1993; 44. *A. erosus* female, 5 km S of Cacaulândia, 22 July 1995; 45. *A. erosus* female, 5 km S of Cacaulândia, 2 Oct. 1993.



FIGS. 46–54. *Clito*, *Anisochoria*; and *Timochreon*, all from BRAZIL: Rondônia unless noted (dorsal surface on left, ventral surface on right). **46.** *C. clito* male, Fazenda Rancho Grande, 16 June 1993; **47.** *C. clito* female, 5 km S of Cacaulândia, 30 July 1997; **48.** *C. "aberrans"* male, COSTA RICA: Guanacaste Prov.; La Pacifica, nr. Cañas, 17 Dec. 1984; **49.** *C. littera* male, Fazenda Rancho Grande, 31 Oct. 1993; **50.** *C. zelotes* male, Fazenda Rancho Grande, 20 Nov. 1991; **51.** *C. clada* Fazenda Rancho Grande, 10 Oct. 1993; **52.** *A. pedalioidina pedalioidina* male, Fazenda Rancho Grande, 20 Oct. 1989; **53.** *A. pedalioidina pedalioidina* female, Fazenda Rancho Grande, 3 Nov. 1989; **54.** *T. satyrus* male, Fazenda Rancho Grande, 3 Nov. 1989.

FIGS. 55–62. Male genitalia of *Mylon* (from BRAZIL: Rondônia unless noted otherwise). Structures shown are lateral, dorsal, and ventral views of tegumen, uncus, gnathos, and associated structures; lateral internal view of right valva (second view of partial valva shows the same flattened); lateral and (usually) dorsal views of aedeagus and associated structures; and dorsal view of transtilla and juxta. **55.** *M. lassia*, COSTA RICA (GTA #7354); **56.** *M. illineatus*, ECUADOR (GTA #7355); **57.** *M. orsa*, COSTA RICA (GTA #7359); **58.** *M. mestor*, ECUADOR (GTA #7358); **59.** *M. ander* (GTA #6394); **60.** *M. menippus* (GTA #7349); **61.** *M. cajus hera*, COSTA RICA (GTA #985); **62.** *M. pelopidas* (GTA #2123).





FIGS. 63-72. Male genitalia of *Mylon* and *Clito* (from BRAZIL: Rondônia unless noted otherwise). Structures shown are lateral, dorsal, and ventral views of tegumen, uncus, gnathos, and associated structures; lateral internal view of right valva (for *Mylon*, also shown are lateral external view of left valva and dorsal view of caudal end of valva); and lateral and (usually) dorsal views of aedeagus and associated structures. **63.** *M. jason* holotype, VENEZUELA (GTA #7307); **64.** *M. exstincta* (GTA #830); **65.** *M. simplex* paratype (GTA #808); **66.** *M. argonautarum* paratype (GTA #4251); **67.** *M. cristata* holotype, GUATEMALA (GTA #2639); **68.** *C. clito* (GTA #3146); **69.** *C. "aberrans"*, COSTA RICA (GTA #7312); **70.** *C. littera anda* (GTA #4377); **71.** *C. zelotes* (GTA #5555); **72.** *C. clada* (GTA #3682).

shorter than tegumen, shallowly divided with second pair of lateral processes caudad and ventral triangular lobes; gnathos broadly divided, relatively short, curved in lateral view; valva stout, ampulla with broad, blunt and slightly spiculose style curved inward and oriented dorso-caudad, harpe curved upward, caudal end slightly curved with dorso-caudad orientation and strongly dentate with spine-like hooks, relatively narrow in dorsal view; aedeagus nearly straight, slender, caudal end spatulate, lateral triangular projection on right side near caudal end.

Female - unknown.

Types. Holotype male with the following labels: white, printed - BRASIL: Rondonia / 62 km S Ariquemes / linha C-20, 7 km E / B-65, Fazenda / Rancho Grande / 22 November 1991 / leg. F. West; white, printed and handprinted - Genitalia Vial / GTA - 2122; red, printed - HOLOTYPE / *Mylon simplex* / Austin; to be deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil. Paratypes - same location as holotype, 14 July 1994 (1 male, GTA #7319), 20 Oct. 1989 (1 male, GTA #459), 14 Nov. 1990 (1 male, GTA #809), 14 Nov. 1995, at paper lures, 1030-1100 (1 male, GTA #7581), 12 Dec. 1990 (1 male, GTA #808), BRAZIL: Rondônia; Linha 10, off B-65, 5 km S of Cacaúlândia, 5 Mar. 1994 (1 male, GTA #7474), 21 Oct. 1989 (1 male, GTA #1410), 8 Nov. 1996 (1 male, GTA #7526). *Type locality.* BRAZIL: Rondônia; 62 km south of Ariquemes, Linha C-20, 7 km (by road) east of route B-65, Fazenda Rancho Grande, 180 meters. This is approximately 5 km northeast of Cacaúlândia in typical lowland tropical rainforest.

Etymology. The name means unadorned and refers to the lack of bristles on the caudal end of the harpe and to the relatively plain superficial appearance in comparison to *M. jason*.

Diagnosis and discussion. *M. simplex* is similar to *M. jason* and very similar to the sympatric *M. exstincta*. It is obviously less mottled than *M. jason*. The male genitalia of *M. simplex* are less robust than are those of *M. jason* and differ from that species much as do the genitalia of *M. exstincta*. *M. simplex* may not be separable from *M. exstincta* superficially. The genitalia of all nine males of *M. simplex* are consistent and differ from those of *M. exstincta* by their broader tegumen and uncus in dorsal view, the small and triangular ventral process from the uncus (this broad and lobate on *M. exstincta*), the broader saccus, the more or less erect style from the ampulla (more caudal orientation on *M. exstincta*), and the more robust harpe. It was suggested to me (Steinhauser, *in litt.*) that these were all *M. exstincta*. Because, however, of the consistency of the genitalia of *M. simplex* and their several obvious differences from those of *M. exstincta*, I recognize this phenotype as a species different from *M. exstincta*.

Distribution and phenology. At present, the species is known only from the types taken in March, July, and October through December (Fig. 108).

Mylon argonautarum Austin, new species

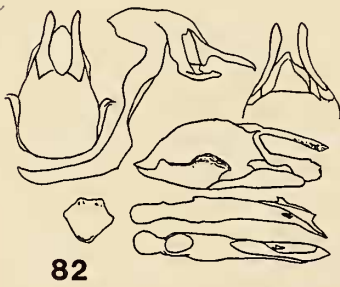
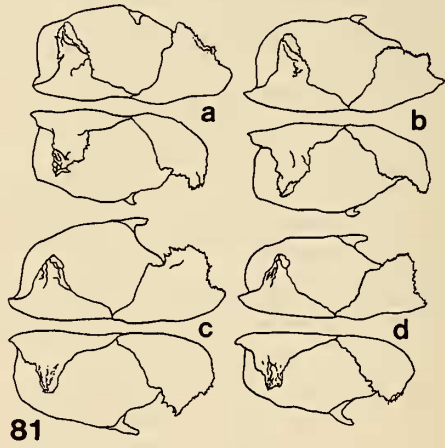
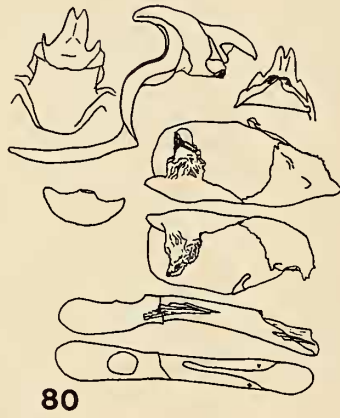
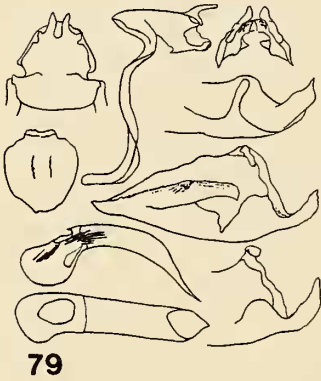
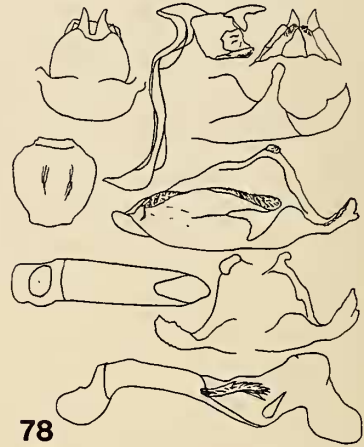
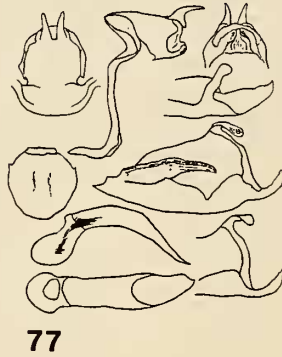
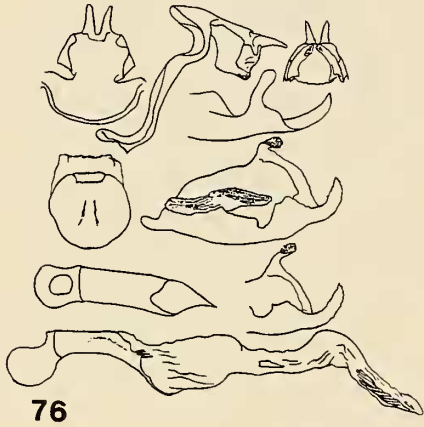
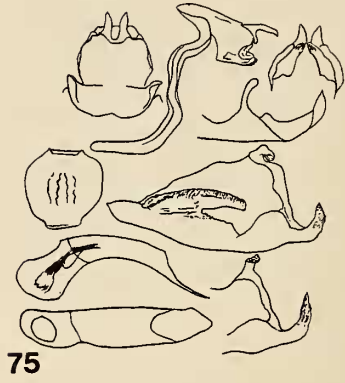
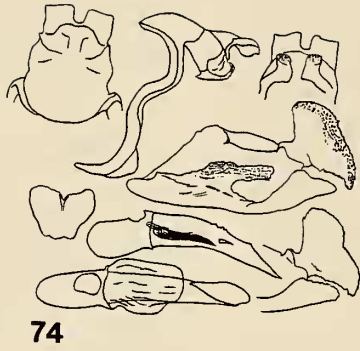
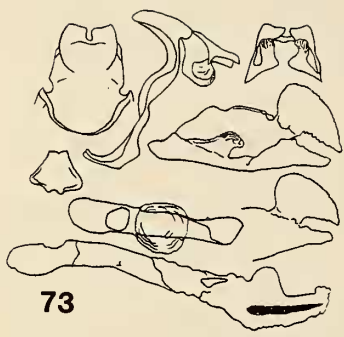
(Figs. 17, 18, 66, 93)

Description. Male - forewing length = 20.6 mm (19.6-21.0, N = 9); ground color of both dorsal wings shining off-white, forewing heavily overscaled with gray and marked with vaguely darker gray macules giving slightly mottled appearance, these macules as submarginal, postmedian, postbasal, and basal series in addition to one in discal cell 2/3 distance from wing base to end of cell, submarginal and postmedian macules darkest (dark gray) towards costa; submarginal series sets off relatively distinct pale gray margin; pale ochre-brown between postbasal and basal macules; veins black, those enclosing end of discal cell directed towards proximal edge of postmedian macule in CuA_1-2A . Hindwing with extensive gray along anal margin, this broadest at base of wing, extending to vein M_3 or M_1 as postmedian line; submarginal band of gray-brown; veins entirely black posteriorly, distally anteriorly. Venter with dorsal pattern nearly obsolete except at forewing apex where more distinct.

Head black on dorsum with white central patch, white beneath antennae and around eyes, antennae black with white at segments on venter and beneath club, nudum red-brown with 17 (N = 4) or 18 (N = 4) segments, palpi mixed white and dark gray; thorax brown with scattered white scales on dorsum, gray on venter, legs brown with white scales, mid-tibiae with single pair of spurs, hind tibiae with two pairs, no tibial tuft; abdomen gray on dorsum with white at segments, white on venter.

Genitalia - tegumen short with narrow recurved flaps caudad supporting anterior part of broad and enclosing vinculum; ventral one-third of vinculum curved; saccus slender, straight; uncus shorter than tegumen, shallowly divided with second pair of lateral processes caudad and ventral rounded lobes; gnathos broadly divided, relatively short, curved in lateral view; valva stout, ampulla with broad, blunt, and slightly dentate style curved inward and oriented mostly caudad, harpe curved upward, caudal end triangular with dorso-caudad orientation and moderately dentate with long spine-like hooks, narrow in dorsal view, tuft of long bristles originating from ventral edge just before caudal dentate portion; aedeagus nearly straight, slender, caudal end spatulate, lateral triangular projection on right side near caudal end.

Female - forewing length = 21.2 mm (N = 1); nearly identical to male, antennal nudum with 18 segments (N = 1).



Genitalia - lamella postvaginalis narrow, caudal end quadrate with narrow U-shaped central notch; lamella antevaginalis with narrow lateral lobes and central process expanding gradually cephalad to pair of lateral lobes just caudad of convex cephalad end, this process spiculose only laterad, "windows" broadly ovate; posterior 1/2 of sterigma covered by transparent membrane; ductus bursae gradually expanded caudad, very narrow cephalad; corpus bursae globular with net-like mass of signa.

Types. Holotype male with the following labels: white, printed - BRASIL: Rondonia / 62 km S Ariquemes / linha C-20, 7 km E / B-65, Fazenda / Rancho Grande / 21 April 1992 / leg. G. T. Austin; white, printed and handprinted - Genitalia Vial / GTA - 7320; red, printed - HOLOTYPE / *Mylon argonautarum* / Austin; to be deposited with the paratype female at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil. Paratypes - same location as holotype, 15 Apr. 1992 (1 male, GTA #2237), 16 Apr. 1997 (1 male, GTA #7644), 13 Aug. 1997 (1 male, GTA #8284), 6 Sept. 1992 (1 male, GTA #3522), 25 Oct. 1993 (1 male, GTA #4390), 16 Nov. 1991 (1 male, GTA #2404), BRAZIL: Rondônia; Linha 15, lot 36, W of Cacaupônia, 9 Oct. 1993 (1 male, GTA #4251), BRAZIL: Rondônia; Linha 10, 5 km S of Cacaupônia, 25 Jan. 1997 (2 males, GTA #7651, 7670), 6 Feb. 1994 (1 male, GTA #7328), 4 Mar. 1996 (1 male, GTA #7477), 5 June 1994 (1 male, GTA #7321), 18 June 1994 (1 female, GTA #7323), 22 July 1995 (1 male, GTA #7329), 9 Aug. 1996 (1 male, GTA #7473), 12 Oct. 1996 (1 male, GTA #8469), 10 Nov. 1996 (1 male, GTA #7527), 16 Nov. 1995 (1 male, GTA #7322), 29 Nov. 1996 (1 male, GTA #8316). *Type locality.* BRAZIL: Rondônia; 62 km south of Ariquemes, Linha C-20, 7 km (by road) east of route B-65, Fazenda Rancho Grande, 180 meters. This is approximately 5 km northeast of Cacaupônia in typical lowland tropical rainforest.

Etymology. The name, meaning "of the argonauts," indicates the apparent relationship of this species to *M. jason*, Jason being the best known argonaut in Greek legend.

Diagnosis and discussion. The examination of the lectotype of *M. jason* and a male of *M. extincta* showed that neither represented the phenotype with bristles on the caudal end of the harpe as illustrated by the figures in Holland (1927) and Hayward (1947, 1948). It is obvious that a "bristled" species is common in collections as Holland (1927) found bristles on all specimens of *M. "jason"* that he examined (see above). It is unknown if these individuals represent *M. argonautarum*, the species to be described next, or an as yet unrecognized species; all need to be carefully reexamined by some future researcher of *Mylon*.

M. argonautarum, with its weakly mottled dorsum, does not appear to be superficially separable from *M. extincta* or *M. simplex*. *M. jason* is noticeably more mottled. The male genitalia of *M. argonautarum* are similar in overall form to those of *M. jason*, *M. extincta*, and *M. simplex*, but are immediately distinguished by the tuft of bristles from near the caudal end of the harpe. Otherwise, the tegumen and uncus are less robust (in dorsal view) than on those three species and the teeth on the caudal end of the harpe are longer and appear more orderly; the overall shape of the harpe most closely resembles that of *M. simplex*. The female genitalia have a narrower sterigma than do either *M. jason* or *M. extincta*, have the lamella postvaginalis shaped as on *M. extincta*, and have a uniquely shaped central process of the lamella antevaginalis with its lateral lobes.

Distribution and phenology. The species is known only from the types taken in January through April and June through November (Fig. 108).

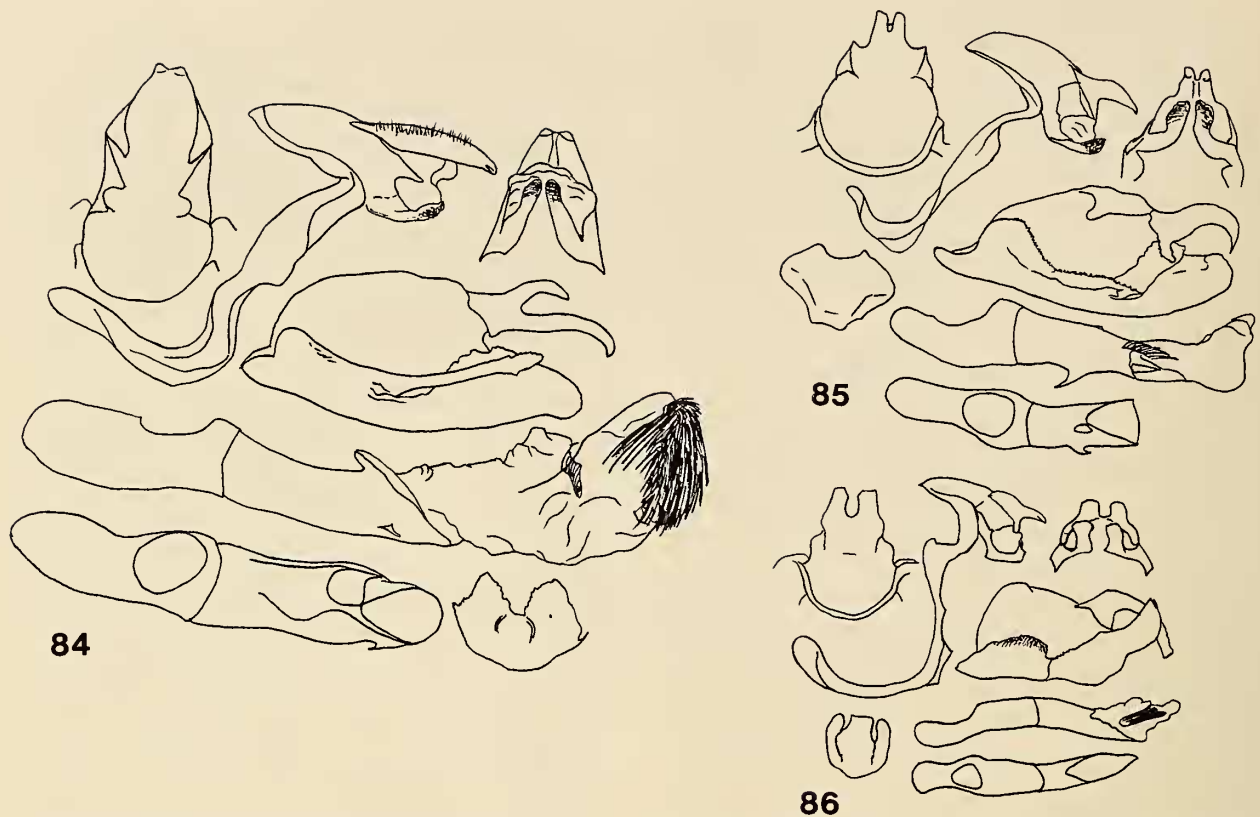
Mylon cristata Austin, new species

(Figs. 19, 20, 67, 94)

Description. Male - forewing length = 19.2, 21.0 mm (N = 2); ground color of both dorsal wings shining gray-white, forewing marked with darker gray macules giving strongly mottled appearance, these macules as submarginal, postmedian, postbasal, and basal series in addition to one in discal cell 2/3 distance from wing base to end of cell, macules darkest (nearly black) towards costa; ochre-brown between postbasal and basal

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FIGS. 73-83. Male genitalia of *Carrhenes*, *Xenophanes*, *Timochreon*, and *Anisochoria* (from BRAZIL: Rondônia unless noted otherwise). Structures shown are lateral, dorsal, and ventral views of tegumen, uncus, gnathos, and associated structures; lateral internal view of right valva (second view of partial valva shows the same flattened); lateral and dorsal views of aedeagus and associated structures; and dorsal view of transtilla and juxta. **73.** *C. chaeremon* (GTA #7313); **74.** *C. bamba* (GTA #374); **75.** *C. leada* (GTA #2033); **76.** *C. canescens*, MEXICO (GTA #7368), also shown is dorsal view of caudal end of valva; **77.** *C. canescens*, GUATEMALA (GTA #5189), also shown is dorsal view of caudal end of valva; **78.** *C. lilloi*, ECUADOR (GTA #7367), also shown is dorsal view of caudal end of valva and lateral internal view of caudal end of left valva; **79.** *C. recurva* holotype (GTA #1170), also shown is dorsal view of caudal end of valva; **80.** *X. tryxus* (GTA #7390), also shown is lateral internal view of left valva; **81.** *X. tryxus*, variation of valvae (shown are lateral internal views of right and left valvae), **a.** (GTA #7461), **b.** (GTA #7389), **c.** COSTA RICA (GTA #7467), **d.** COSTA RICA (GTA #7464); **82.** *T. satyrus tampa* (GTA #959); **83.** *A. pedalioidina pedalioidina* (GTA #2125), also shown is lateral internal view of left valva.



FIGS. 84–86. Male genitalia of *Antigonus* (all from BRAZIL: Rondônia). Structures shown are lateral, dorsal, and ventral views of tegumen, uncus, gnathos, and associated structures; lateral internal view of right valva; lateral and dorsal views of aedeagus and associated structures; and dorsal view of transtilla and juxta. **84.** *A. nearchus* (GTA #7470); **85.** *A. erosus* (GTA #3968); **86.** *A. liborius* (GTA #7311).

macules; veins black, those enclosing end of discal cell directed towards proximal edge of postmedian macule in CuA_1-2A . Hindwing with extensive gray along anal margin and basad where broadest, extending to vein Rs as usually distinct postmedian line; submarginal series of chevron-shaped gray-brown macules; veins entirely black. Venter with dorsal pattern less distinct especially centrally on forewing.

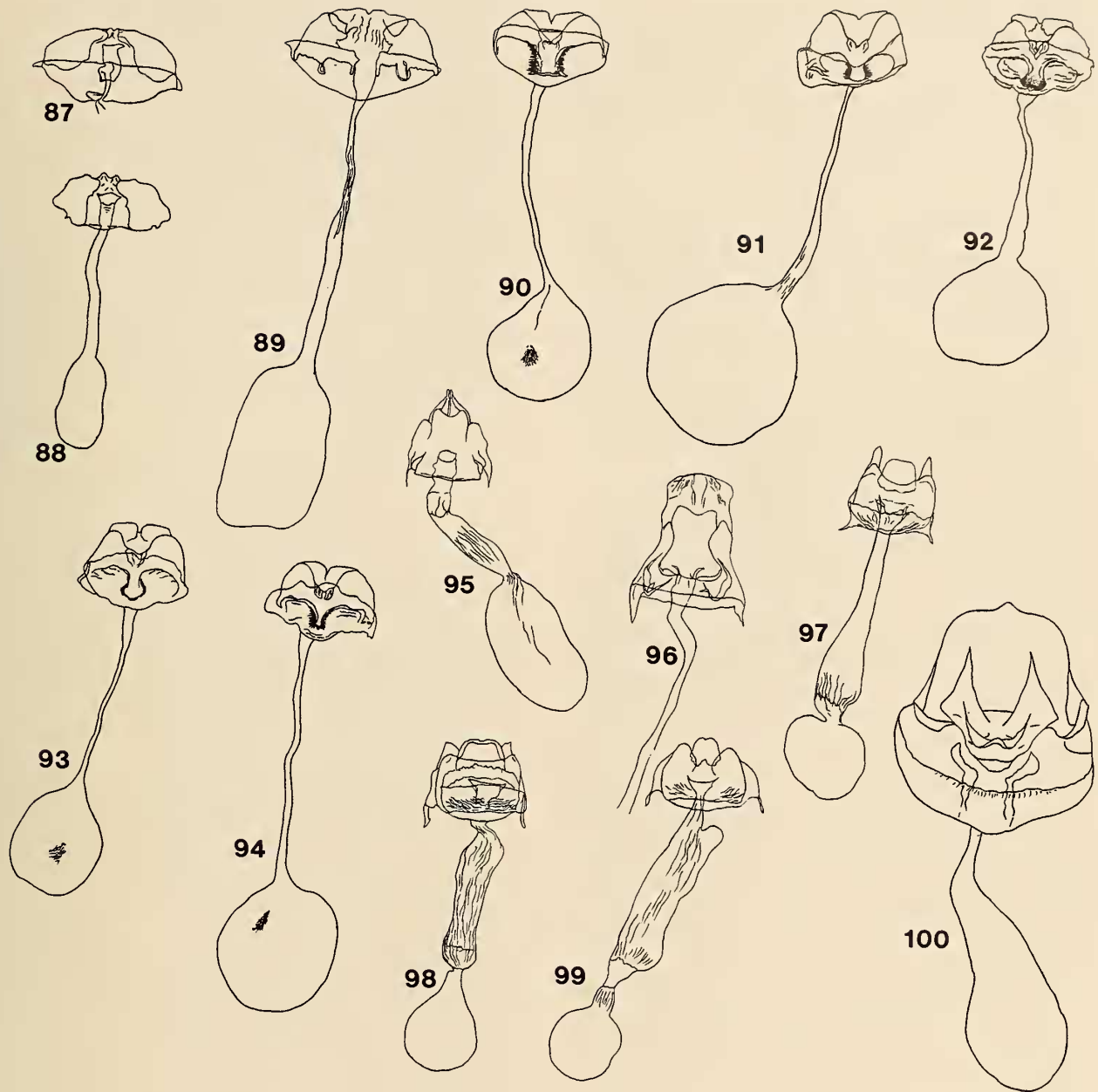
Head black on dorsum with white central patch, white beneath antennae and around eyes, antennae black with white at segments, pale yellow beneath club, nudum red-brown with 18 ($N = 1$) segments, palpi mixed white and dark gray on dorsum, white ventrally; thorax brown with scattered white scales on dorsum, gray on venter, legs brown with white scales, mid-tibiae with single pair of spurs, hind tibiae with two pairs, no tibial tuft; abdomen gray on dorsum with white at segments, white on venter.

Genitalia - tegumen short with relatively narrow recurved flaps caudad supporting anterior part of broad and enclosing vinculum; vinculum relatively straight; saccus slender, slightly upturned; uncus shorter than

tegumen, shallowly divided with second pair of lateral processes caudad and rounded ventral lobes; gnathos broadly divided, relatively short, abruptly curved in lateral view; valva stout, ampulla with broad, pointed and slightly spiculate style curved inward and oriented predominantly caudad, harpe curved upward, caudal end rounded with nearly dorsad orientation and dentate with spine-like hooks, robust in dorsal view, tuft of long bristles originating from ventral edge just before caudal dentate portion; aedeagus nearly straight, slender, caudal end narrowly spatulate, lateral hook-like projection on right side near caudal end.

Female - forewing length = 21.1 mm (20.4–21.8, $N = 3$); similar to male, antennal nudum with 18 ($N = 1$) or 19 ($N = 3$) segments.

Genitalia - lamella postvaginalis moderately broad, caudal end curved gradually to narrow V-shaped central notch; lamella antevaginalis with relatively broad lateral lobes and a narrow central process flared slightly at cephalad edge, this process heavily spiculate laterad and cephalad, "windows" narrowly ovate; posterior 1/2 of sterigma covered by transparent mem-



FIGS. 87-100. Female genitalia (ventral view) of *Mylon*, *Carrhenes*, and *Clito* (from BRAZIL: Rondônia unless noted otherwise). 87. *M. lasia*, COSTA RICA (GTA #7357); 88. *M. mestor*, ECUADOR (GTA #7384); 89. *M. menippus* (GTA #7350); 90. *M. pelopidas*, MEXICO (GTA #7339); 91. *M. jason* paralectotype, VENEZUELA (GTA #7309); 92. *M. exincta* holotype, "Amazone Supérieur" (GTA #5983); 93. *M. argonautarum* paratype (GTA #7323); 94. *M. cristata* paratype, GUATEMALA (GTA #7333); 95. *Carrhenes chaeremon* (GTA #7456); 96. *C. bamba* (GTA #7361); 97. *C. leada* (GTA #3601); 98. *C. recurva* paratype (GTA #7460); 99. *C. canescens*, MEXICO (GTA #7369); 100. *Clito clito* (GTA #8278).

brane; ductus bursae gradually expanded caudad, very long and very narrow cephalad; corpus bursae globular with net-like mass of signum.

Types. Holotype male with the following labels: white, printed and handprinted - GUATEMALA / Petén; Parque / Nacional Tikal / 16 April 1992 / leg. N.

M. Haddad / piste; white, printed and handprinted - Genitalia Vial / GTA - 2639; red, printed - HOLOTYPE / *Mylon cristata* / Austin. Paratypes - same location as holotype, 2 Feb. 1992 (1 female, GTA #7344), 3 Feb. 1992 (1 female, GTA #7335), 5 Feb. 1992 (1 male, GTA #7330), 31 May 1993 (1 female, GTA

#7316), 15 July 1993 (1 female, GTA #7333). The holotype male and a paratype female will be deposited in the Entomological Collections at the Universidad del Valle, Guatemala City, Guatemala. *Type locality*. GUATEMALA: Petén; Parque Nacional Tikal. The types were taken at flowers in disturbed areas near the edge of forest and along roads.

Etymology. The name means tufted and refers to the bristles on the caudal end of the harpe.

Diagnosis and discussion. Superficially, *M. cristata* appears distinctly mottled and, as such, resembles *M. pelopidas* and *M. jason*. It is at once distinguished from *M. pelopidas* by the orientation of the end of the forewing discal cell towards the proximal edge of the dark macule in CuA_2-2A . *M. jason* is very similar, perhaps averaging less heavily marked, but the genitalia will need to be examined for determination of most individuals. The dorsa of *M. exstincta*, *M. simplex*, and *M. argonautarum* are less mottled. The male genitalia of *M. cristata* are generally like the preceding four species, are most similar in overall form to those of *M. jason*, but have the less robust aspect of the tegumen and uncus and the caudal tuft of bristles on the harpe as do the genitalia of *M. argonautarum*. The female genitalia generally resemble those of *M. jason*, but the central process of the lamella antevaginalis is much narrower and more heavily spiculate to include the cephalad edge.

The types of *M. cristata* were encountered while examining comparative material for the Rondônia study and were originally identified as *M. jason* (Austin et al. 1996) and included in series with the females of that species also from the same area of Guatemala. The material listed by Holland (1927), Evans (1953), and others as *M. jason* needs to be reexamined and correctly identified and undoubtedly mixed series determined as *M. jason* exist in many collections. The *M. "jason"* illustrated by Hayward (1947, 1948) resemble *M. cristata* more than they do *M. argonautarum* or may represent yet another undescribed species of this group.

Distribution and phenology. At present, *M. cristata* is known only from the types taken in February, May, and July and a male examined from Colombia (Cesar, La Jaque, 15 km S Becerril, 20 July 1969, AME). This species is undoubtedly more widespread judging by the discussion in Holland (1927, see also above under *M. jason*).

Key to the males of the "*pelopidas*" group species of *Mylon*

1. End of forewing discal cell erect, not parallel to termen, oriented towards distal edge of dark macule in cell CuA_2-2A ; harpe elongate, slender, not upturned or prominently toothed *pelopidas*

- End of forewing discal cell angled, parallel to termen, oriented towards proximal edge of dark macule in cell CuA_2-2A ; harpe short, broad, blunt, upturned and prominently toothed 2
2. Harpe without caudal bristles 3
Harpe with caudal bristles 5
3. Harpe robust (especially in dorsal view) with robust teeth; tegumen elongate; dorsal wings mottled *jason*
Harpe less robust, relatively thin in dorsal view, teeth smaller; tegumen shorter; dorsal wings less distinctly mottled 4
4. Harpe triangular in lateral view, style with prominent dorsal orientation *simplex*
Harpe not triangular in lateral view, style with orientation more caudal *exstincta*
5. Harpe triangular in lateral view, style more erect; dorsal wings not prominently mottled, southern Neotropics *argonautarum*
Harpe not triangular in lateral view, style more caudad in orientation; dorsal wings mottled, northern Neotropics *cristata*

Key to the known females of the "*pelopidas*" group species of *Mylon* (female of *M. simplex* unknown)

1. End of forewing discal cell erect, not parallel to termen, oriented towards distal edge of dark macule in cell CuA_2-2A ; central process of lamella antevaginalis broad, flared cephalad, spiculate on lateral edges; "windows" broad and rectangular *pelopidas*
End of forewing discal cell angled, parallel to termen, oriented towards proximal edge of dark macule in cell CuA_2-2A ; genitalia without above combination of characters 2
2. Central process of lamella antevaginalis narrow, densely spiculate on lateral and cephalad edges; wings distinctly mottled *cristata*
Central process of lamella antevaginalis broad, not densely spiculate on cephalad and/or lateral edges; wings distinctly mottled or not 3
3. Central process of lamella antevaginalis gradually expanded cephalad where lobate, spiculate laterad, "windows" ovate; wings weakly mottled *argonautarum*
Central process of lamella antevaginalis expanded only at cephalad end, not lobate, spiculate on cephalad and/or lateral edges; "windows" ovate or round; wings distinctly mottled or not 4
4. Wings distinctly mottled; central process of lamella antevaginalis spiculate only on lateral edges; "windows" round *jason*
Wings weakly mottled; central process of lamella antevaginalis spiculate on lateral and cephalad edges; "windows" ovate *exstincta*

CARRHENES GODMAN & SALVIN, 1895

Four species of *Carrhenes* were recognized by Evans (1953). Steinhäuser (1974) raised one species from synonymy and (1989) described two additional species and raised one of Evans' (1953) subspecies to the specific level. The genus occurs from Mexico (one species straying into southern Texas) to Argentina. Four species have been encountered in central Rondônia, of which one is undescribed. These are present mainly in the early wet season and are virtually

absent during the dry season (Figs. 109, 110). Female genitalia are illustrated for the first time.

"fuscescens" group

The *"fuscescens"* group of *Carrhenes* (proposed by Steinhauser 1989) is readily recognized by the prominent expansion of the ampulla of the male valva. All species, except *Carrhenes infuscescens* Steinhauser, 1989, appear to have prominent mid-costal hyaline macules on the forewing. The group includes *Carrhenes fuscescens* (Mabille 1891), *Carrhenes calidius* Godman & Salvin, 1895, *Carrhenes bamba* Evans, 1953, *Carrhenes sinesinus* Steinhauser, 1989, and *C. infuscescens*. Two species, including one raised from subspecific status below, were found in central Rondônia.

Carrhenes chaeremon (Mabille 1891), **revised status**
(Figs. 22, 23, 73, 95)

Leucochitonina chaeremon Mabille, 1891.

Carrhenes fuscescens chaeremon (Mabille 1891): Evans, 1953.

A *"fuscescens"* group species of *Carrhenes* from central Rondônia similar to, but smaller than, the sympatric *C. bamba* and with different genitalia appears to be *C. chaeremon*. Evans (1953) included this as a subspecies of *C. fuscescens*. Its male genitalia, however, are more similar to those of *C. calidius* than to *C. fuscescens*, especially in the configuration of the ampulla process and the tooth on the right side of the aedeagus. *C. chaeremon* has an additional smaller tooth on the left side of the aedeagus and lacks the row of small teeth on the left side of the vesica opening seen on *C. calidius* (and *C. fuscescens*). The female genitalia have a narrow and pointed lamella postvaginalis and an elongate lamella antevaginalis with a broad central process and resemble those of *C. bamba*. Because of the genital differences, *L. chaeremon* is here returned to specific status.

C. chaeremon is rare in central Rondônia with records for February, March, May, and November (Fig. 110).

Carrhenes bamba Evans, 1953
(Figs. 24, 25, 74, 96)

C. bamba was described as a subspecies of *C. fuscescens* by Evans (1953). Based on differences in genitalia and sympatry with *C. calidius*, Steinhauser (1989) raised this taxon to specific status (see also Steinhauser 1974). Further reinforcing its specific distinctness from other *"fuscescens"* group taxa, *C. bamba* is sympatric with *C. chaeremon* in central Rondônia. There, it is the most abundant of the *Carrhenes* with records in January through May and July through De-

ember (Fig. 109). The genitalia of males from Rondônia are as illustrated by Steinhauser (1989). The female genitalia are particularly distinctive with their elongate sterigma, quite different from those of *C. fuscescens*.

"canescens" Group

The *"canescens"* group includes the remaining species of *Carrhenes*, *Carrhenes canescens* (R. Felder, 1869), *Carrhenes callipetes* Godman & Salvin, 1895, and *Carrhenes santes* Bell, 1940 plus, as follows here, two taxa raised to specific status and one new species. Males do not have the produced ampulla on the valva as seen on *"fuscescens"* group species and the forewing is without mid-costal hyaline macules.

Carrhenes leada (Butler, 1870), **revised status**
(Figs. 26, 27, 75, 97)

Achlyodes leada Butler, 1870.

Carrhenes canescens leada (Butler, 1870): Evans, 1953.

The taxa of *C. canescens* (*sensu* Evans 1953) are in need of more study. Subtle differences in genitalia and superficial markings and potential sympatry indicate that more than one species is involved, but their combinations will not be clear until the group is revised. Evans (1953) noted that the taxa "seem to have 2 seasonal forms" ("dark" and "whitened"). In Mexico and Central America, for example, the two "forms" included in *C. c. canescens* (Figs. 31–33) have different male genitalia (Figs. 76, "dark" form; 77, "whitened" form).

In central Rondônia, the *"canescens"* group is represented by two species. One of these is of the *Achlyodes leada* Butler, 1870, concept. It differs from both apparent taxa of the *"canescens"* group from Mexico and Central America by its shortened and less flaring uncus, the configuration of the valva (ampulla process, harpe, sacculus), and in the shape of the aedeagus. In this latter character, the butterfly from Rondônia resembles Hayward's (1939) figure of *Carrhenes leada* although the valva appears different (less curved harpe, different shape to ampulla), but this may be individual variation. Because of its genitalic differences from *C. canescens* (Figs. 75–77, 97, 99), *C. leada* is here considered as a species.

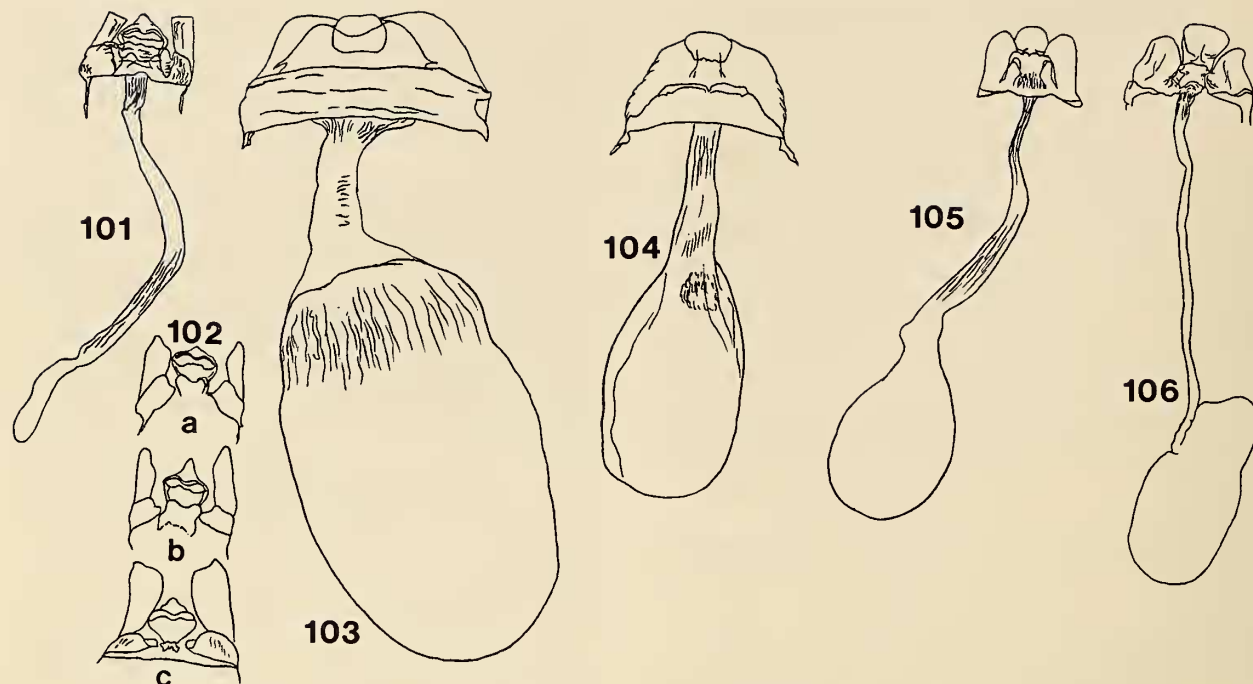
C. leada is rare in the Cacaupândia area with single records for June and August and three for November (Fig. 110).

Carrhenes lilloi Hayward, 1947, **revised status**
(Figs. 30, 78)

Carrhenes lilloi Hayward, 1947.

Carrhenes canescens pallida Röber, 1925: Evans, 1953.

Hayward (1947) described *C. lilloi* from the holotype from Macas, Rio Upano, Ecuador, and included



FIGS. 101–106. Female genitalia (ventral view) of *Xenophanes*, *Antigonus*, and *Anisochoria* (from BRAZIL: Rondônia unless noted otherwise). **101.** *X. tryxus* (GTA #7388); **102.** *Xenophanes tryxus*, variation of lamellae, **a.** (GTA #7465), **b.** (GTA #7387), **c.** MEXICO (GTA #7466); **103.** *Antigonus nearchus* (GTA #7472); **104.** *A. erosus* (GTA #3958); **105.** *A. liborius* (GTA #7385); **106.** *Anisochoria pedalioidina pedalioidina* (GTA #7469).

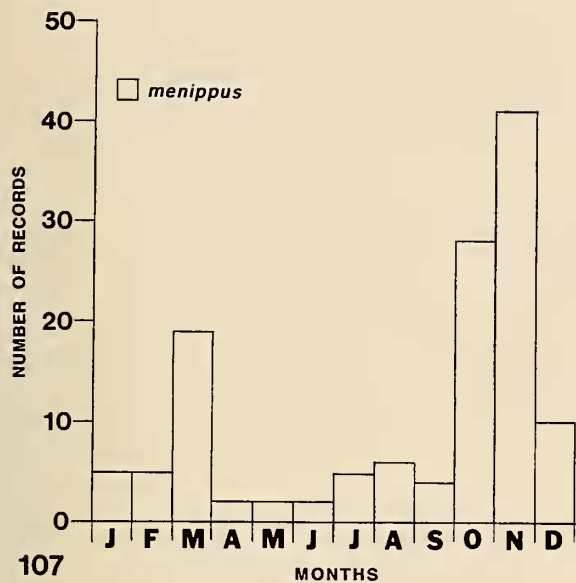
eight specimens from Argentina as paratypes. He noted that the markings on the paratypes were very faint in comparison with the holotype. This taxon was synonymized with *Carrhenes canescens pallida* Röber, 1925, by Evans (1953) with his usual lack of justification. Mielke (1989) examined the holotype of *Carrhenes pallida* and commented that *C. c. pallida* was a subspecies known from southern Brazil, Paraguay, and Argentina. The paratypes of *C. lilloi* actually are *C. c. pallida* (fide Mielke). A more recently taken male from Ecuador (Rio Napo, Limoncocha, 10 July 1983) is here illustrated, shows superficial and genitalic characters more or less like those in the figures by Hayward (1947, 1948, one or both of these may be of specimens from Argentina and thus *C. c. pallida*), and is obviously different from other taxa of *C. canescens* (sensu Evans 1953). This specimen from Ecuador is taken to represent *C. lilloi* and, as such, the taxon deserves specific status. It is superficially similar to *C. leada* from Rondônia, but is paler. The genitalia also differ (Figs. 75, 78). On *C. lilloi*, the uncus is narrower than on *C. leada*, the process from the ampulla is longer, broader and not twisted at its distal end, the harpe is broader and bifurcate, and the aedeagus is more abruptly curved cephalad in lateral view.

Carrhenes recurva Austin, new species

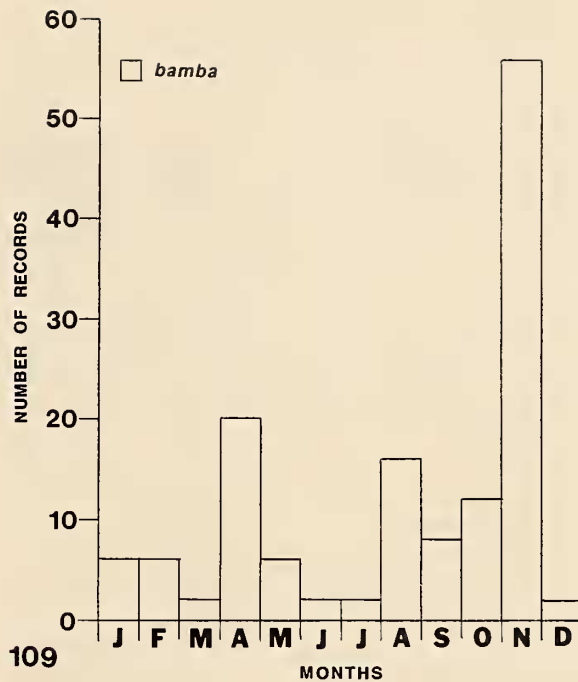
(Figs. 28, 29, 79, 98)

Description. Male - forewing length = 16.2 mm (holotype); forewing with costal fold; dorsum pale gray-brown, outer one-third of both wings darker; forewing marked with darker gray-brown as submarginal band from costa to anal margin leaving margin of paler ground color, incomplete postmedian band most prominent towards costa and in CuA_2-2A , indistinct postbasal band, and dark wing base; three white hyaline subapical macules in R_3-R_4 , R_4-R_5 , and R_5-M_1 , central one smallest and set just proximad of other two; small white hyaline macule near base of $Sc-R_1$; additional small white hyaline macule near base of M_3-CuA_1 . Hindwing also with dark markings; submarginal band as on forewing, postmedian band of quadrate macules posteriad becoming smaller and nearly lineal anteriorly; vague postbasal macules, wing base dark. Venter much paler than dorsum and with glossy sheen; markings, especially on forewing, reduced.

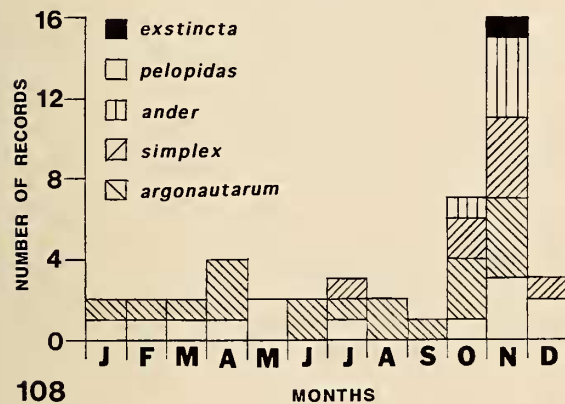
Dorsal head and thorax dark brown with scattered white scales, white around eyes, palpi missing, antennae black with white at segments on inner side becoming most prominent distad, pale yellow beneath club,



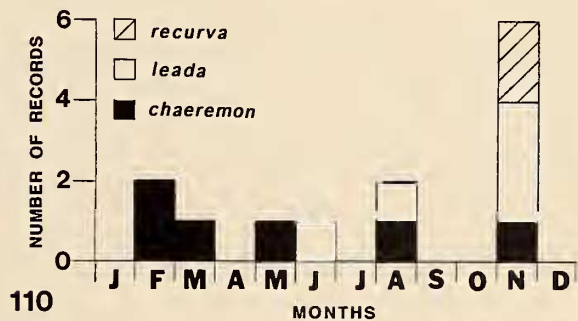
107



109



108



110

FIGS. 107-110. Phenology of some Hesperidae in the vicinity of Cacaulândia, Rondônia, Brazil. 107. *Mylon menippus*; 108. several *Mylon* species; 109. *Carrhenes bamba*; 110. *Carrhenes chaeremon*, *C. leada*, and *C. recurva*.

nudum black, 16 segments; ventral thorax white, legs pale ochre and black with white hairs, mid-tibia with single pair of spurs, hind tibia with two pairs and long dark gray hair-tuft fitting into thoracic pouch.

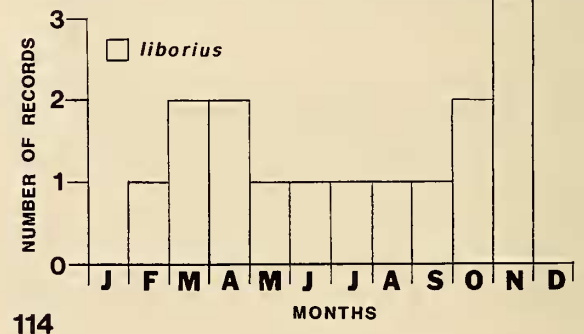
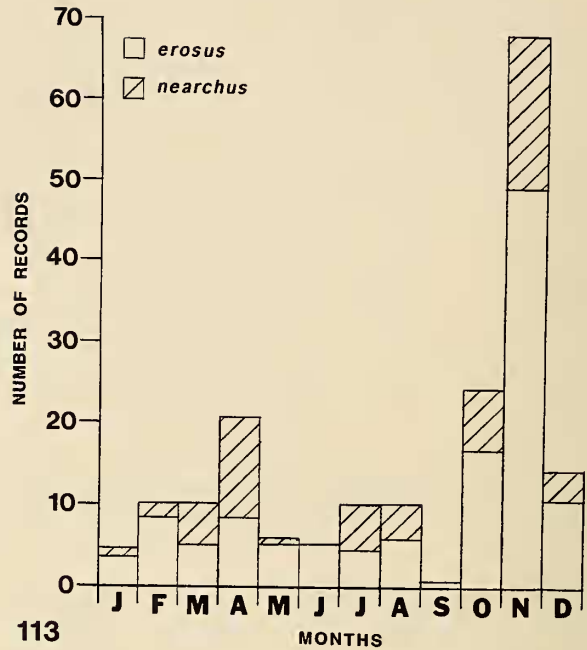
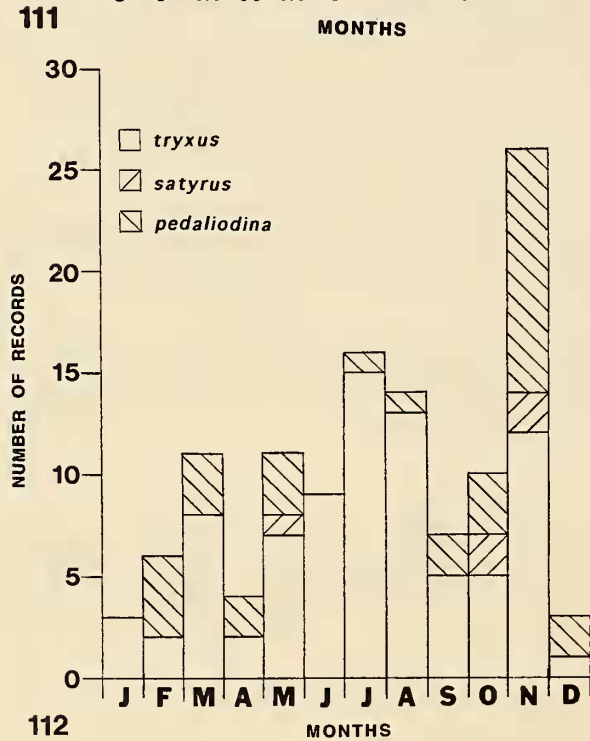
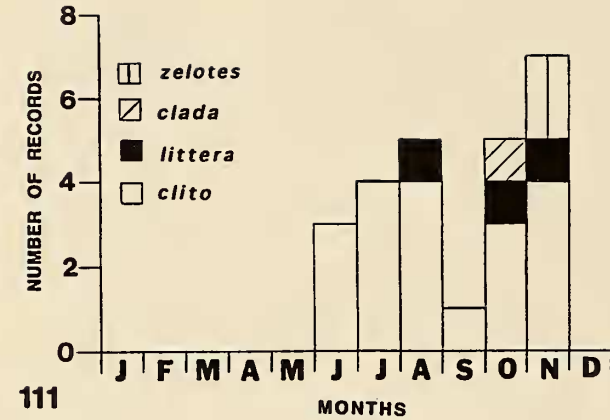
Genitalia - tegumen short and broad, narrowed caudad; uncus divided, arms narrow and slightly divergent; gnathos divided; valvae symmetrical, ampulla with thin lobe having slight caudal orientation extending inward from its highest point, harpe blade-like, curving upward and slightly inward, edges weakly toothed; sacculus with spiculose process extending caudad from upper edge, this curved very slightly downward; aedeagus short, strongly recurved, phallobase bulbous.

Female - forewing length = 16.6 mm (paratype); similar to male; no costal fold or tibial tuft; dark mark-

ings more distinct; forewing subapical macules larger than on male with additional macule in M_1-M_2 under outer edge of macule in R_5-M_1 ; macule in M_3-CuA_1 larger than on male; additional small triangular macules anteriorly and posteriorly in CuA_1-CuA_2 under end of discal cell; large divided hyaline macule in discal cell 2/3 distance from base; palpi black above, white below; nudum red-brown, 15 segments.

Genitalia - sterigma more or less quadrate, lamella postvaginalis represented by short lateral lobes extending caudad about same distance as broad central lobe of lamella antevaginalis, antrum flared caudad, ductus bursae broad, constricted cephalad where joining narrow and elongate corpus bursae.

Types. Holotype male with the following labels: white, printed - BRASIL: Rondonia / B-65, 3 km N



FIGS. 111-114. Phenology of some Hesperidae in the vicinity of Cacaulândia, Rondônia, Brazil. 111. several *Clito* species; 112. *Xenophanes tryxus*, *Timochreon satyrus*, and *Anisochoria pedalioidina*; 113. *Antigonus nearchus* and *A. erosus*; 114. *Antigonus liborius*.

C-20 / 8 km N Cacaulândia / 1 Nov. 1990 / leg. G. T. Austin; white, printed and handprinted - Genitalia Vial / GTA - 1170; yellow, printed - photographed / G. T. Austin & / J. P. Brock / March 1992; red, printed - HOLOTYPE / *Carrhenes recurva* / Austin. Paratype - BRAZIL: Rondônia; "Fernandes Trail" off B-65, 1 km N of Cacaulândia, 5 Nov. 1990 (1 female, GTA #7460). Both will be deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil. *Type locality*. BRAZIL: Rondônia; road B-65, 8 kilometers north of Cacaulândia, 170 m elevation in disturbed, but otherwise typical, lowland tropical rainforest.

Etymology. The species is named after the strongly recurved aedeagus.

Diagnosis and discussion. *C. recurva* closely resembles other "canescens" group species, but especially the "whitened" phenotype of *C. canescens* from Central America. It differs from the sympatric *C. leada* by the apparent larger size, the more rounded wings, the more heavily marked dorsum (note that on *C. leada*, the forewing markings are prominent only in the apical area), the broader and less upcurved harpe, and the more recurved and slender aedeagus. The male genitalia of *C. recurva* differ from those of *C. canescens* by their shorter processes from the uncus, more triangular valva, broader sacculus, more inwardly directed process from the ampulla, and broader harpe. The female genitalia differ from those of *C. leada* by

the broader sterigma, the relatively broad ductus bursae, and the more elongate corpus bursae.

Distribution and phenology. At present, the species is known only from the types taken in November (Fig. 110).

CLITO EVANS, 1953

Clito includes seven Neotropical species recognized by Evans (1953); an additional species was described by de Jong (1983). The genus occurs from Mexico to Bolivia and Brazil, but most species appear to be rare and not widely distributed. Four species are known from the Cacaúlândia area of which one was included in another genus. These have been recorded in the dry and early wet seasons (Fig. 111).

Clito clito (Fabricius, 1787)
(Figs. 46, 47, 68, 100)

C. clito is the most frequently encountered member of the genus in central Rondônia and is represented by records in June to August, October, and November (Fig. 111). Its male genitalia are as illustrated by Evans (1953). Female genitalia have a spiked lamella antevaginalis, a short and thin ductus bursae, and an elongate and bulbous corpus bursae.

Students of *Clito* should be aware that *Hydraenomia aberrans* Draudt, 1924, described from Tefe (Amazonas, Brazil), may represent a recognizable taxon. A single male of *C. "clito"* examined from Costa Rica is pale (Fig. 48) and has genitalia different (Fig. 69) from those of *C. clito* from Rondônia and appears to be of that concept. *H. aberrans* was considered a synonym of *C. clito* by Evans (1953) and Mielke (1993); more material needs to be examined to determine its status.

Clito littera anda Evans, 1953
(Figs. 49, 70)

C. littera is apparently a very rare species. Evans (1953) saw only the type of *Clito littera littera* (Mabille, 1977), saw no specimens of *Clito littera nebulosa* (Draudt, 1924), and the type and an additional male of *C. l. anda*. Mielke and Casagrande (1991) obtained the first example of this species from Brazil in Roraima. Four males, taken in August, October, and November (Fig. 111), are known from the Cacaúlândia area and extend the distribution far southward. The genitalia resemble those illustrated by Evans (1953).

Clito zelotes (Hewitson [1873])
(Figs. 50, 71)

Two males of *C. zelotes* are known from central Rondônia, both taken in November. Their genitalia are as shown by Evans (1953).

Clito clada Evans, 1953,
new combination, new status
(Figs. 51, 72)

Eracon menmon clada Evans, 1953.

Description. Male - forewing length = 12.2 mm (N = 1); forewing with costal fold, termen evenly convex except slightly concave in CuA_2-2A ; hindwing termen weakly undulate, concave in M_1-M_3 and M_3-CuA_2 ; dorsum brown; forewing overscaled with gray except in submarginal, median, and postbasal areas which remain ground color and appear as dark macular bands; white hyaline macules as follows: discal cell, proximal edge straight, distal edge excavate in V-shape; CuA_1-CuA_2 , curvate bar, more distad than discal cell macule, proximal edge at origin of vein CuA_1 ; M_3-CuA_1 , near base of cell; series of small subapical in R_3-R_4 , R_4-R_5 (smallest, offset proximad), and R_5-M_1 , continued as similarly-sized submarginal macules offset distad in M_1-M_2 and M_2-M_3 ; fringe dark gray; hindwing overscaled with gray distad, proximad with many long hair-like gray scales in discal cell and along vein 2A; narrow, irregular whitish bands in submarginal and median areas and whitish postbasal bar in discal cell; fringe gray, paler than on forewing.

Venter similar to dorsum; brown ground color paler; forewing with much less (only submargin and along costa) and hindwing with much more (covering nearly entire wing) gray overscaling; forewing with opaque white macule in upper portion of CuA_2-2A , more proximad than macule in CuA_1-CuA_2 ; anal margin broadly gray; hindwing with whitish bands more prominent.

Head dark brown with many gray scales; palpi black above with a few white scales, white beneath; antennae black with white at segments distad and entirely white proximad beneath, nudum gray, 19 segments; thorax dark brown above and heavily overscaled with gray, white beneath; middle and hind legs missing; dorsal abdomen dark brown with gray at segments and heavily overscaled with gray, ventral abdomen white.

Genitalia - tegumen long, thin, with lateral lobes sloping ventrad; uncus undivided, slightly shorter than tegumen, narrow in both lateral and ventral views; gnathos undivided, shorter than uncus; vinculum thin, slightly sinuate; saccus short, stout, blunt; valva with broad costa and narrower ampulla, ampulla with dorsal margin serrate, harpe curved dorsad to fine and sharply pointed tooth; aedeagus short, stout; cornutus as series of short spikes; juxta and transtilla fused into prominent sheath enclosing aedeagus.

Discussion. This species was described as a subspecies of *Eracon mnemon* (Schaus, 1913). *C. clada* is

obviously different from that species in being smaller, having more rounded forewings, having hindwings not produced at the tornus, and having a more well-developed hindwing pattern (see figure of *E. mnemon* in Schaus 1913). Further, although this taxon was included in *Eracon* Godman & Salvin, 1894, by Evans (1953), the generic placement of *C. clada* was initially unclear because of its wing shape, markings, and small size. The pattern of its markings and, especially, its genitalia, with the thin and undivided uncus, the form of the gnathos, the aspect of the valva, and the sheathed aedeagus indicated that it was a member of the genus *Clito*.

A single male of *C. clada*, taken in October, was seen from central Rondônia.

XENOPHANES GODMAN & SALVIN, 1895

The single species of *Xenophanes* occurs from Mexico to Argentina with strays occurring north into southern Texas.

Xenophanes tryxus (Stoll [1780]) (Figs. 34, 35, 80, 81, 101, 102)

X. tryxus is not uncommon in the Cacaúlândia area with records in all months, but is most common in the dry and early wet seasons (Fig. 112). The species varies superficially in color (gray to dark gray-brown) and in the size of the hyaline macules. This does not seem to be seasonal variation, at least in Rondônia; the only seasonal variation is an apparently larger size among early wet season individuals.

The previously illustrated male genitalia of *X. tryxus* (Godman & Salvin 1895, Lindsey et al. 1931, Hayward 1933, 1948, Bell 1942, Evans 1953) exhibit a variety of valval configurations and three (Bell 1942, Hayward 1948, Evans 1953) show asymmetry. This latter, prominent in material from Rondônia, involves the ventral portion of the right harpe generally extending caudad of its dorsal lobe while the left harpe curves dorsad (Figs. 80, 81). The shape and size of the harpes vary not only locally, but also geographically. For example, the left harpe of Central American *X. tryxus* is more massive than it is in Rondônia. There is also variation, local as well as apparent geographic, in the female genitalia (Figs. 101, 102). These differences need to be examined in collections with a broad geographic scope.

ANTIGONUS HÜBNER, [1819]

Antigonus, distributed from Mexico to Argentina, includes nine species recognized by Evans (1953) and another described by Mielke (1980). Three species have been seen at the Rondônia study area. These oc-

cur throughout the year, but are most prevalent during the early wet season (Figs. 113, 114).

Antigonus nearchus (Latreille [1817]) (Figs. 38–41, 84, 103)

A. nearchus is relatively common in the Cacaúlândia area and is often found at mud. Records are for January through May, July, August, and October through December (Fig. 113).

The most common form of male *A. nearchus* is very dark blackish brown with vaguely darker black bands. This predominates in the wet season, when there also occurs a rare brown form. During the dry season, the dorsum of most individuals is grayer on which the black bands are more conspicuous. The venter is palest on the gray form and darker on the brown form, but not as dark as on the black form. A single female seen from July (dry season) is paler than one from November (wet season).

The male genitalia of *A. nearchus* were previously illustrated by Godman and Salvin (1879–1901), Hayward (1933, 1948), and Evans (1953). Those of Rondônia material are typical. The female genitalia have a broad and short sterigma, a short and stout ductus bursae, and a large and oblong corpus bursae.

Antigonus erosus (Hübner [1812]) (Figs. 42–45, 85, 104)

A. erosus is the most abundant *Antigonus* in central Rondônia with records from all months (Fig. 113). Like *A. nearchus*, the species is frequently encountered at mud.

A. erosus exhibits seasonal forms as does *A. nearchus*. Throughout the year, males are heavily overscaled with gray and vaguely marked with darker bands. Dry season males are paler gray than they are in the wet season. Individuals from the dry season and early wet season have three prominent subapical macules; these are vague or absent at other times of the year. The venter is palest during the dry season. Females are very variable and too few were seen from the dry season to examine the seasonal distribution of their variation. The ground color of females varies from tan with prominent dark brown bands to dark brown and overscaled with gray and they have 2–4 subapical macules. Some have additional hyaline macules including one or two in the discal cell, a large one in CuA_2-2A , and a smaller one in CuA_1-CuA_2 .

The male genitalia have been illustrated several times (Godman & Salvin 1895, Hayward 1933, 1948, Evans 1953). The female genitalia are similar to those of *A. nearchus*, but have a narrower sterigma and a less robust corpus bursae.

Antigonus liborius liborius Plötz, 1884
(Figs. 36, 37, 86, 105)

A. liborius is rare in central Rondônia, but records occur throughout much of the year from February through November (Fig. 114).

Apparent seasonal variation is shown by *A. liborius* in Rondônia. Five males from the wet season are dark brownish black on the dorsum with vaguely darker bands. All five have a single subapical macule. One has a minute mid-costal macule and a lower one in the discal cell; the others are without these and all lack discal macules. The two dry season males seen are paler brown with more contrasting bands. One has single subapical and mid-costal macules. The other has three subapical macules, a mid-costal macule, a minute macule near the base of M_3-CuA_1 , and a large one in the middle of cell CuA_1-CuA_2 . Six females from the late dry and early wet seasons are brown with conspicuously contrasting black bands, have 1 to 3 subapical macules, have a usually prominent mid-costal macule (absent on one), usually have a macule in CuA_1-CuA_2 (this entire, divided, or only with the lower portion hyaline; absent on one), and two have a hyaline macule in M_3-CuA_1 . A single female from the early wet season is darker with less contrasting bands and a single subapical, but no other, hyaline macule. The ventral hindwing of males is contrasting medium gray-brown distad on the posterior 1/2 of the wing. Females are much paler here. Evans (1953) did not mention seasonal variation in this species. Additionally, care should be taken in using Evans' (1953) key to superficial characters since the mid-costal macule may be absent on some *A. liborius*.

The male genitalia of *A. liborius* from Rondônia appear as those previously illustrated (Hayward 1948, Evans 1953). The sterigma of the female genitalia has an overall form similar to those of *A. nearchus* and *A. erosus*, but is much narrower. The ductus bursae is long and relatively thin and the corpus bursae is bulbous.

TIMOCHREON GODMAN & SALVIN, 1896

Two species of *Timochreon*, distributed from Panama to Brazil, were recognized by Evans (1953). One species occurs in central Rondônia.

Timochreon satyrus tampa Evans, 1953
(Figs. 54, 82)

T. satyrus is rarely seen in the Cacaupândia area with records for May, October, and November (Fig. 112). The valva of *T. s. tampa* was illustrated by Evans (1953); the aedeagus has a prominent thorn-like structure on the right side of its dorsum.

ANISOCHORIA MABILILE, [1877]

Eight species were included by Evans (1953) in *Anisochoria* and Nicolay (1980) described another. These range from Mexico to Argentina; one is known from central Rondônia.

Anisochoria pedalioidina pedalioidina (Butler, 1870)
(Figs. 52, 53, 83, 106)

A. pedalioidina is relatively common in the Cacaupândia area with records for February through May and July through December, mostly in the early wet season (Fig. 112). There is no apparent seasonal and little individual variation among this material.

The male genitalia of Rondônia material are as illustrated by Evans (1953) with asymmetrical valvae. Female genitalia have a relatively narrow lobate lamella postvaginalis, broad lateral lobes to the lamella antevaginalis, and a long and thin ductus bursae entering the side of a bulbous corpus bursae.

SUMMARY

This paper adds to the knowledge of the fauna of Hesperidae in Rondônia, Brazil, and the Neotropics in general. Many of the species of seven genera of the "*Antigonus*" group are discussed and their genitalia are illustrated in more detail than before; for most, the female genitalia have never been illustrated. In all, three new species are described from Rondônia and one from Guatemala, a revised status is established for three taxa, a new status is proposed for two taxa, and a new combination is suggested for one species. The adds to the growing body of information on the taxonomy of this family of butterflies.

ACKNOWLEDGMENTS

I thank O. H. H. Mielke and V. Becker for making studies of Rondônia butterflies possible. Mielke and S. R. Steinhauser have continually shared with me their extensive knowledge of Neotropical hesperiids; Steinhauser provided copies of pertinent literature. The reviews of the manuscript by Mielke, Steinhauser, H. A. Freeman, and D. Bowers and their suggestions for improvement are greatly appreciated. J. E. Rawlins (Carnegie Museum) loaned the types of *Leucochitonina jason* for study and Nguyen Thi Hong (Muséum Nationale d'Histoire Naturelle, Paris) loaned the type of *Mylon extincta* and an associated male. Rawlins also directed me to literature which I had overlooked. L. D. and J. Y. Miller and S. R. Steinhauser facilitated studies at the Allyn Museum of Entomology (AME). R. and A. Albright, C. Bongiorno, J. P. Brock, O. Gomes, J. D. Turner, A. Warren, and F. and A. West assisted in the field in Rondônia and N. M. Haddad, A. E. Launer, C. Méndez, D. D. Murphy, V. and G. Orellana, and T. D. Sisk in Cuatemala. T. C. Emmel continues to provide encouragement and support for my investigations in Rondônia. The Schmitz family at Fazenda Rancho Grande makes field studies in Rondônia comfortable. The Conselho Nacional de Desenvolvimento Científico e Tecnológico kindly issued the authorization permits from the Ministério da Ciência e Tecnologia for studies in Rondônia in collaboration with EMBRAPA/CPAC and the Universidade Federal do Paraná. Permits and other assistance in

Guatemala was provided by Centro de Estudios Conservacionistas (CECON) of the Universidad de San Carlos, the Parque Nacional de Tikal, The Peregrine Fund, and Consejo Nacional de Areas Protegidas (CONAP). Partial financial support for studies in Guatemala was provided by the John D. and Catherine T. MacArthur Foundation through Stanford University.

LITERATURE CITED

- AUSTIN, G. T., N. M. HADDAD, C. MENDEZ, T. D. SISK, D. D. MURPHY, A. E. LAUNER & P. R. EHRLICH. 1996. Annotated checklist of the butterflies of the Tikal National Park area of Guatemala. *Trop. Lepid.* 7:21–37.
- AUSTIN, G. T. & O. H. H. MIELKE. 1998. Hesperidae of Rondônia, Brazil: *Aguna* (Pyrginae), with a partial revision and descriptions of new species from Ecuador, Panama, and Brazil. *Revta bras. Zool.* 14:889–965.
- BELL, E. L. 1942. New records and new species of Hesperidae from Mexico. (Lepidoptera: Hesperidae). *An. Escuela nac. Cien. biol. México* 2:455–468.
- BURNS, J. M. 1990. *Amblyscirtes*: problems with species, species groups, the limits of the genus, and genus groups beyond—a look at what is wrong with the skipper classification of Evans (Hesperidae). *J. Lepid. Soc.* 44:11–27.
- DE JONG, R. 1975. An abdominal scent organ in some female Pyrginae (Lepidoptera: Hesperidae). *Ent. Ber.* 35:166–167.
- . 1983. Annotated list of the Hesperidae (Lepidoptera) of Surinam, with descriptions of new taxa. *Tijdschr. Ent.* 126:233–268.
- EHRMANN, G. A. 1907. New tropical American Hesperidae. *Can. Ent.* 39:317–323.
- EMMEL, T. C. & G. T. AUSTIN. 1990. The tropical rainforest butterfly fauna of Rondonia, Brazil: species diversity and conservation. *Trop. Lepid.* 1:1–12.
- EMMEL, T. C., G. T. AUSTIN & H. SCHMITZ. 2000. The tropical rainforest butterfly fauna of Rondônia, Brazil: current status of investigations and conservation. *Trop. Lepid.* In press.
- EVANS, W. H. 1952. A catalogue of the American Hesperidae in the British Museum. Part II (groups B, C, D), Pyrginae. Section I. London: British Museum (Natural History). 178 pp.
- . 1953. A catalogue of the American Hesperidae in the British Museum (Natural History). Part III (groups E, F, G) Pyrginae. Section 2. London: British Museum (Natural History). 246 pp.
- GODMAN, F. D. & O. SALVIN. 1879–1901. *Biologia Centrali-Americana. Zoologia, Lepidoptera-Rhopalocera*. London: Taylor & Francis. 1269 pp.
- HAYWARD, K. J. 1933. Lepidopteros Argentinos. Familia Hesperidae. *Revta Soc. ent. argent.* 5:149–188.
- . 1939. Hesperioidea argentina VIII. *An. Soc. cient. argent.* 126:429–459.
- . 1947. Las especies argentinas de los generos “*Mylon*” y “*Carrhenes*” (Lep. Hesperidae). *Acta zool. Lilloana* 3:307–312.
- . 1948. Insecta, Lepidoptera (Rhopalocera), familia Hesperidae, subfamiliae Pyrrhopyginarum et Pyrginarum. Vol 1. In H. R. Descole (ed.), *Genera et species animalium argentinorum*. Buenos Aires: Guillermo Kraft. 389 pp.
- HOLLAND, W. J. 1927. The Lepidoptera named by George A. Ehrmann. *Ann. Carnegie Museum* 17:299–364.
- LINDSEY, A. W. 1925. The Cornell University Entomological Expedition to South America of 1919–1920. Scientific results. No. II. Hesperioidea. *Denison Univ. Bull.* 21:71–113.
- LINDSEY, A. W., E. L. BELL & R. C. WILLIAMS, JR. 1931. The Hesperioidea of North America. *Denison Univ. Bull.* 26:1–142.
- MABILLE, P. & E. BOULLET. 1917. Description d'hésperides nouveaux (Lep.). *Bull. Soc. ent. France* 1917(1):54–60.
- MIELKE, O. H. H. 1980. Contribuição ao estudo faunístico dos Hesperidae americanos. V. Nota suplementar às espécies de Pyrrhopyginae e Pyrginae do Rio Grande do Sul, Brasil (Lepidoptera). *Acta biol. parana.* 8/9:7–17.
- . 1989. Sobre os tipos de Hesperidae descritos por Roeber (Lepidoptera). *Revta bras. Zool.* 6:131–146.
- . 1993. Sobre os tipos de Hesperidae (Lepidoptera) neotropicais descritos por M. Draudt. *Revta bras. Ent.* 37:611–638.
- MIELKE, O. H. H. & M. M. CASAGRANDE. 1991. Lepidoptera: Papilionoidea e Hesperioidea coletados na Ilha de Maracá Alto Alegre, Roraima, parte de Projeto Maracá, com uma lista complementar de Hesperidae de Roraima. *Acta amazonica* 21:175–210.
- NICOLAY, S. S. 1980. Descriptions of new Hesperidae from Panama and Ecuador (Pyrginae and Hesperinae). *Bull. Allyn Mus.* 59:1–17.
- SCHAUS, W. 1913. New species of Rhopalocera from Costa Rica. *Proc. Zool. Soc. London* 24:339–367.
- STEINHAUSER, S. R. 1974. Notes on Neotropical Nymphalidae and Hesperidae with descriptions of new species and subspecies and a new genus. *Bull. Allyn Mus.* 22:1–38.
- . 1989. Taxonomic notes and descriptions of new taxa in the Neotropical Hesperidae. Part I. Pyrginae. *Bull. Allyn Mus.* 127:1–70.